CHNOLOGY DEPT.

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The Newspaper of the Industry

Air Conditioning & REFRIGERATION NEWS

Production Tools for Victory

AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

Technical Governmental

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SEP 27 1944 DETROIT

Inside Dope

By George F. Taubeneck

Latin America—
Our Great Opportunity
Women War Workers
Appreciate Appliances
The Glamourous Item—
Automatic Laundry
Postwar Success Is a Sure Thing
Two Strong Arguments
For Automatic Unit
Economy Story Will Be Stressed
Surveys Indicate Tremendous Sales
Common Objections
Answered Easily
Association Sees 3 Million Sales
Educational Job Is Still Needed

Latin America— Our Great Opportunity

Historians of calmer days may record that the real reason we went to war was to preserve—or improve—our opportunities for economic collaboration in Latin America.

The Germans were rapidly becoming the dominant commercial factor among our Good Neighbors—just as the French had long enjoyed cultural leadership, and the British financial control—of our Latin American friends.

This sad situation was no doubt our fault, partially. We have just been too impatient to accommodate ourselves to Latin American trading methods, and too brusquely wealthy to realize how important the friendship and aid of our hemispheric neighbors is to our own well-being, peace, and prosperity.

After the war we can count on the elimination of German competition. Yes, and the Japanese, too—which was beginning to be left. But the British will be in there pitching faster than ever. And some day we may see Russian competition, too.

All in all, though, the Latin American market should show up in our trade figures far larger than it ever has before. Mexico and Brazil, for example, have tied their economic systems very closely with ours during the war—a move which should redound bountifully to the credit of all three nations.

Mexico may spend as much as half a billion dollars for American equipment when it is available. But this isn't all. For several years American capital—plus potent "refugee" funds—have been seeking investment in our nearest southern neighbor's expansion. It now appears as if Mexico will be politically stable, and such investments will be protected. Trade follows investments, and we can all bank on it that Mexico will become a great American customer in the years to come.

Same situation is true in Brazil—to a lesser extent now, to a greater extent in the years to come. Here, too, we can probably plan on political stability — which means protection against expropriation of our investments and against exorbitant taxation.

Right now Brazil holds nearly a billion dollars worth of gold and exchange. She has enjoyed the investment of not-yet-told millions of Lend-Lease and Army funds in her development. She has the greatest backlog of undeveloped natural resources remaining in the world. She has a population of 45,000,000 in an area greater than the United States.

Venezuela and Colombia can be depended upon to provide us with much larger markets than they ever did in the past—largely because they were formerly in the German commercial "orbit," whereas they are now largely dependent on us economically. Peru and Chile, also, will afford greater opportunities.

And, believe it or not, Great Britain (which is supposed to be "broke") has built up four billion dollars in exchange. The British

(Continued on Page 6, Column 3)

100,000 Tons Of Steel Is Allocated For Civilian Goods

WASHINGTON, D. C.—The War Production Board's Requirements Committee has allotted 100,000 tons of carbon steel and 25,000 tons of alloy steel for distribution to manufacturers of civilian goods during the fourth quarter of this year under the "spot authorization" procedure, J. A. Krug, acting WPB chairman, announced Sept. 14.

Smaller plants will get special preference for this steel.

In a press conference J. A. Krug, acting chairman of WPB, stated that the question of when the electric refrigerator, washer, and other consumer durable goods industries could start using such allocated materials for civilian goods production would depend on the result of discussions with the War Manpower Commission.

The manpower situation, plus the matter of the availability of such components as electric motors, would very largely determine the matter of when limited production of such items might begin. He warned against too much hope for production on much of a scale before the German surrender.

Mr. Krug said: "This action will permit WPB regional offices to grant purchase authority for new production steel to manufacturers whose applications, under the spot procedure, are approved. The Requirements Committee made this steel available for use under the spot procedure only after it was determined

(Concluded on Page 32, Column 1)

C. E. Wilson Resumes Presidency Of G-E

SCHENECTADY, N. Y.—Owen D. Young and Gerard Swope resigned Sept. 8 as chairman of the board and president, respectively, of the General Electric Co., and Charles E. Wilson was re-elected president by the board of directors meeting in New York. No announcement of a successor to Mr. Young as chairman was made.

Heating, Cooling Fields Urged To Unite Efforts

DETROIT, Sept. 21—"The public has a single track mind with reference to industries and products. It can associate only one dominant idea in connection with a product or a service. Fortunately, greater indoor comfort and health is a single idea that can be easily understood by the public when associated with the theme—'Controlled Indoor Climate is the 4th Dimension in Living."

So spoke Edward R. Grace of Grace & Bement, Inc., advertising counsel to the Indoor Climate Institute, in pointing up the program of the group at the first day's session of the I.C.I. Forum here. Some 300 members of the industry registered.

"Each segment of the related heating, cooling, and air conditioning industries is jealous of its importance

Complete reports on the Indoor Climate Institute forum sessions will be published in the Oct. 9 issue of the News.

—each is convinced that if the public knew the truth, it would be quick to buy those products that would answer family needs and home comfort," Mr. Grace declared.

"It is illogical for a great industry, such as the heating, cooling, and air conditioning one, to permit the isolated functioning of its members without the benefit of group action which can provide such momentum and penetration of a basic idea.

The Indoor Climate Institute, in acting as a clearing house of unprejudiced information, introduces a new potent factor in the commercial operations of all firms who go to form the controlled indoor climate industry, said Mr. Grace.

This will be accomplished, he said, by drawing together the manufacturers and their trade associations as a non-partisan group, and getting this group to function as an intelligent spokesman in presenting the many factors relating to the science of controlled indoor climate.

National Service Council Ponders Future Function Of Its National Organization

WASHINGTON, D. C.—The National Refrigeration Manpower and Training Program is nearing completion, but shall the type of "national committee' which supervised the activities and the "local councils" that carried out the activity in local communities be disbanded, or should they carry on to function in handling of some of the problems that will arise after the war?

This was the main question that kept cropping up at a meeting of the National Refrigeration Service Council, the committee which has guided the training program, when the Council met here last week to get a report on the status of the program and to decide on future activity.

W. Ray Kromer of Cleveland, national director for the program, said that the purposes for which the training program had been started had been generally accomplished, but that a number of local councils had been slow in getting local programs underway, and were just now starting training in their community.

With the situation thus, a resolution was adopted by the National Refrigeration Service Councils to continue its functions and to continue assistance to Local Councils until the spring of 1945, and to render help to new training schools starting by Jan. 1, 1945.

At last count, said Mr. Kromer, 4,968 trainees had enrolled in the local training programs of whom some 3,400 could be expected to complete the course and find employment in refrigeration servicing work. This number will be swelled by classes which started late in the summer and this month.

These men went to school in training programs activated by Local Service Councils in 127 communities in 38 states.

"I believe that we can honestly say that the Manpower Training Program had a major part in forestalling serious breakdowns of essential refrigeration equipment this past summer," said Mr. Kromer.

"Possibly the trainees didn't do so much of the important work themselves, but they made it possible to upgrade other servicemen to the highly essential commercial and industrial refrigeration repair work."

Members of the National Service Council agreed with Mr. Kromer that with the favorable outlook of the war and the Selective Service situation being what it is, that there is no need now for further expansion of the training program, but it was decided to go along with the activity to help the local training programs that are just now getting underway.

A great number of inquiries have been received, said Mr. Kromer, from

(Concluded on Page 29, Column 1)

8,000 Refrigerated Display Cases In Next 11 Months

WASHINGTON, D. C.—A refrigerated display case production program calling for the production of 8,000 units for the period from Oct. 1, 1944, to Sept. 1, 1945, has been approved subject to manpower clearance, WPB officials reported to the Commercial Refrigeration and Air Conditioning Industry Advisory Committee last week.

This program will permit manufacture of display cases up to 20% of the 1940 production (in dollar volume) of manufacturers who were active at that date, the officials said. A directive to Order L-38 which will put the program into effect should be ready in about a week, it was stated.

In all cases, however, manufacturers will have to get clearance first on form WPB-3820, which is a statement of the manufacturer's present and anticipated manpower situation.

Leagues Hear Plan Of Retailers Assn.

DETROIT—The practical benefits to appliance dealers of the National Electrical Retailers Association, and the value to dealers of analyzing local potential markets were subjects highlighted in the postwar planning discussions that opened the ninth annual conference of the International Association of Electrical Leagues, meeting in Detroit's Book-Cadillac hotel Sept. 20-22.

More than 100 representatives of electrical leagues throughout the country's leading cities listened to

(Concluded on Page 32, Column 2)

List Given of Firms With Rebuilt Motors

WASHINGTON, D. C.—According to reports made recently to agencies here, the following motor dealers have rebuilt fractional horsepower motors for sale (115 volts, single-phase, 60-cycle, 1725 r.p.m.).

Rockford Electric Equipment Co., 704 South Wyman St., Rockford, Ill.

Ther Electric & Machinery Works, 17 South Jefferson St., Chicago.

Barnes & Brass Electric Co., 901 West Pike St., Clarksburg, W. Va.

Glow Electric Co., 933 Harriet St., Cincinnati.

City Supply Co., 1519 Congress St., Houston, Tex.

Marwood Electric Co., 3539 W. Cermak Rd., Chicago .

L. & P. Electric Co., 684 Bedford Ave., Brooklyn, N. Y.

Tri-State Electric Motors, Inc., 351 Second St., Troy, N. Y.

Harvester Co. Says It Plans Household Unit

CHICAGO—International Harvester Co., which produced home freezers for the rural market prior to the war, will resume production of this item when war controls permit, and will also manufacture household refrigerators, it was announced by President Fowler McCormick at a recent stockholders' meeting.

Both refrigerators and freezers will be distributed through the company's established farm implement dealers located chiefly in rural areas, the company said.

Eugene G. Schneider, formerly eastern district manager of general line sales, heads the new refrigerator and freezer division, which was set up in July.

Chemical Scarce So 'Freon' Will Continue Short

New Kinetic Plant Held Up By Unavailability Of Hydrofluoric Acid

WASHINGTON, D. C.—Shortage of hydrofluoric acid, one of the principal components in the manufacture of "Freon-12," will make necessary the retention of present controls over the use of this refrigerant in refrigeration and air conditioning systems after Oct. 1, members of the Commercial Refrigeration and Air Conditioning Industry Advisory Committee were told here last week.

The sections of Conservation Order M-28 which control the allocation of "Freon-12" expire Sept. 31, but they will probably be continued beyond that date by an amendment to the order, said WPB officials.

With Kinetic Chemicals, Inc., producer of "Freon," putting its new East Chicago, Ind., plant into operation on time Aug. 15 there were high hopes held that production would soon be at the point where most restrictions on civilian uses could be dropped.

Of the 1,060 tons of hydrofluoric acid promised producers of "Freon-12" for October, only 685 tons will be available at that time, a Chemicals Bureau representative told industry members. He said hydrofluoric plants are producing only approximately 75% of their overall expected October quota because manufacturers overestimated their production capacity and because two new plants failed to begin operation on scheduled time.

To remedy the shortage of hydrofluoric acid, WPB is considering approval of new facilities to increase production approximately 10%. However, no relief is expected for three or four months after the new plants are put in operation.

It is also said that the government is expediting the conversion of some of the hydrofluoric acid in shut-down aluminum plants to making anydrous hydrofluoric acid.

WPB officials reported that directives have set a deadline for the return of 2,000 pound refrigerant cylinders to manufacturers. Cylinders for "Freon-12" must be returned in 30 days, and containers for aerosol in 15 days.

Material Allocated For 37,500 Domestic Stokers

WASHINGTON, D. C. — Material has been authorized for the production of 37,500 domestic type coal stokers during the fourth quarter of 1944, WPB has announced.

WPB officials emphasized that home owners should not expect that any appreciable quantity of these stokers will be available for sale to them until December at the earliest.

Material also has been authorized for the producton of 6,500 commercial and industrial stokers during the fourth quarter. WPB earlier had announced fourth quarter production in that category at 2,500, but this figure was raised to 6,500 because of the acute need.

Officials said that Order L-75, controlling stoker production, would be amended soon to permit the resumption of output of domestic type stokers.

Until L-75 is formally amended, only those producers who can qualify under the "spot authorization" procedure established in Priorities Regulation 25, will be permitted to begin production of domestic stokers.

'Freezing Preserves Quality Best' Says Dept. of Agriculture Report

WASHINGTON, D. C. — "The quick-freezing and freezing-storage methods of preserving fruits and vegetables, which was unknown less than a generation ago, has made tremendous strides in recent years because this method, more than any other, preserves the quality of fresh foods and because great progress in refrigeration engineering has made possible the widespread application of this method."

That statement is the introduction to the section on quick-frozen foods in the "1943 Report of the Administrator of Agricultural Research of the United States Department of Agriculture."

One of the most interesting parts of the report revealed that investigations by the Army Quartermaster Corps showed that frozen vegetables may be kept for fairly long periods of time at ordinary refrigerator temperatures. Said this portion of the report:

"Investigations made for the Quartermaster Corps showed that frozen vegetables can be used in Army camps without the installation of extensive special refrigeration equipment, and that, on the basis of semi-weekly distributions from refrigerated warehouses to company kitchen refrigerators, spoilage will not occur.

"In kitchen refrigerators kept at 40° F. spinach (in the case) having an initial temperature of 20° F. remained in good condition for 16 days, whereas peas similary stored showed no deterioration until the eleventh day."

Other parts of the report dealt mainly with new freezing techniques and the extension of the types of products which can be satisfactorily frozen. Following are parts of the report:

"To meet the needs of the food industry, which is hampered by wartime restrictions on the use of metal containers, the Western Regional Laboratory developed techniques for freezing pork and beans, cranberry sauce, tomato products, and the kinds of fruits that were formerly preserved in large (No. 10) cans for commercial pie baking and preserve and jam manufacture.

"Wholesome frozen food products of good quality were developed, as a result of war demands, from raw materials usually removed in sorting or preparation for market to increase salability, such as vegetable trimmings and fruits that are distorted, scarred, or overripe.

"These new products included chopped broccoli, purees of various vegetables and fruits, and steamed-and-boned poultry of stewing age. They are nutritious, palatable, compact, and convenient, and provide an expanded outlet for some good food materials that previously were largely wasted.

"Freezing preservation for a limited time has been shown to be practical for prolonging the commercial fruit canning and preserving season. A processing technique developed at the Western Regional Laboratory, which eliminates the necessity of any prefreezing treatment for apricots, prunes, peaches, and pears, will permit packers to can larger quantities of such fruits in spite of factory labor and equipment limitations at harvest time, if freezing storage is available.

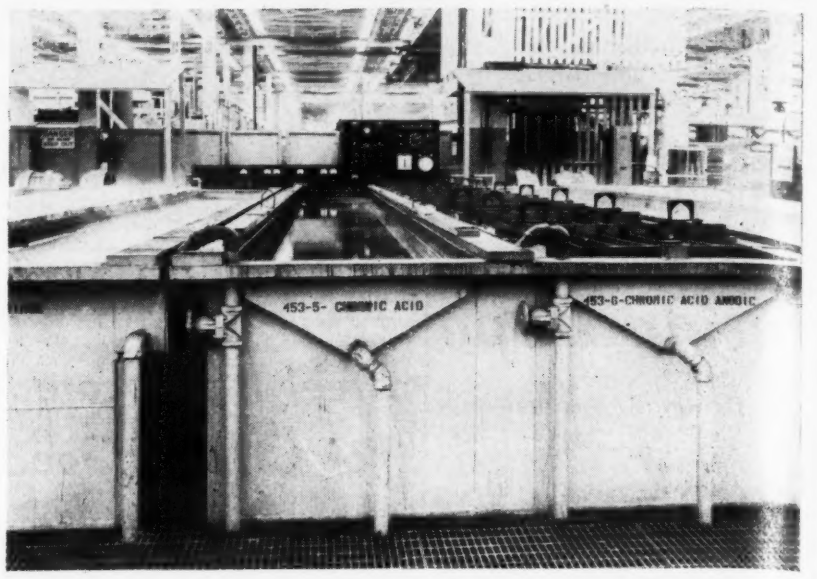
"Fully ripe fruit was frozen and stored for several months at —10° F. By bringing the temperature to 20°, the fruit is easily pitted or cored and peeled. By finishing preparation of the fruit and placing it in a hot steam kettle for preserves or submerging it in sugar sirup for canning before it was defrosted, discoloration and loss of flavor were prevented.

"It was found that strawberries can be frozen with considerably less sugar than usual, without appreciable loss of quality. High-dextrose corn sugar was a satisfactory substitute for cane sugar for this purpose. In tests of strawberry purees frozen in ice cream addition to the puree of 30 to 50% of sugar and 0.5 to 1% of pectin gave a product that was satisfactory as to color, texture, flavor, and melting properties.

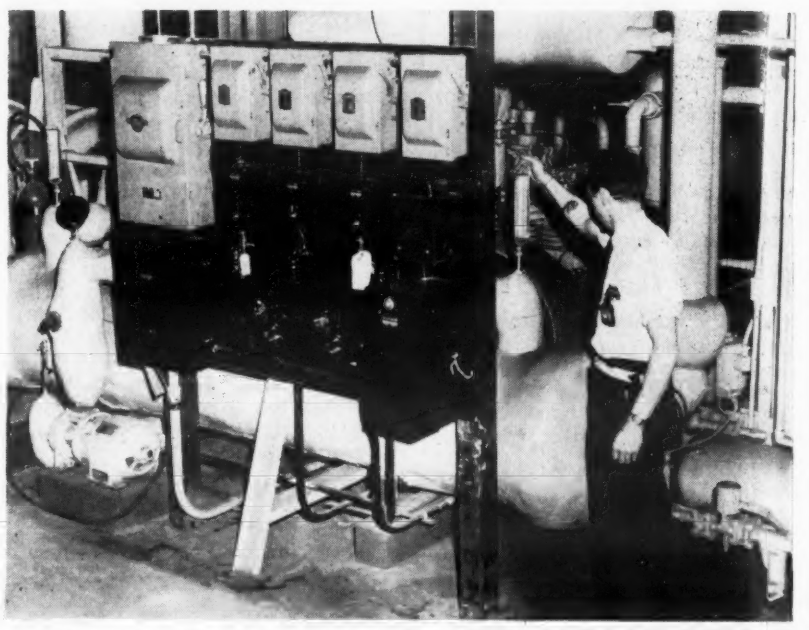
"The combination of pectin-containing frozen fruit purees with ice cream provides a means for increasing the gallonage of ice cream at a time when there is insufficient cream and milk to meet the demand for ice cream and sherbets. The addition of fruit also provides a greater variety of flavors in ice cream.

"A satisfactory formula was developed for a new all-fruit frozen dessert to take the place of ice cream. Officials of the United States Quartermaster Corps have expressed a desire to supply Army camps with this dessert, which has the texture of ice cream.

How Refrigeration Helps Create Better Airplanes



Treatment of plane parts in chromic acid baths to protect them from breaking down or corrosion when they are exposed in use is one of the production tricks that is helping the U. S. to victory. Maintenance of a constant temperature is vital in these baths at Douglas Aircraft's Chicago plant, and a 40-ton Carrier refrigeration system provides the necessary cooling.



An employe checks the temperature of the vat holding the chromic acid. Part of the refrigeration installation is visible.

Shackelford Sets Up As Parts Distributor In Wilmington, N. C.

WILMINGTON, N. C. — C. W. Shackelford, who until just recently operated a Frigidaire and Zenith dealership and service firm under the name "Shackelford's," has given up his retailing and service operations to become a jobber of refrigeration, radio, and auto parts and equipment, and will operate as S. R. S. Distributors.

Earlier in the year, Mr. Shackelford had conducted training courses for refrigeration repairmen, graduating 45 students from the advanced class. "After graduating the men from our school, we had so many calls for refrigeration parts we decided to start jobbing them, since there was not a jobber in this territory," explains Mr. Shackelford.

The firm had been jobbing radio parts for several years.

Carroll Willis Returns To Home Appliance Co.

WICHITA, Kan. — Carroll Willis, manager of the War Production Board's district office here for the past year and a half, has resigned to return to his post as president of the Home Appliance Co., said to be one of Kansas' largest appliance distributorships.

Mr. Willis joined WPB in May, 1942, after failing in attempts to enlist in the Armed Forces. He has been in the appliance field for 20 years, and moved to Wichita from Kansas City, Mo. 11 years ago.

The Home Appliance firm has already signed postwar franchises for distribution of the Bendix home laundry units, Servel refrigerators, Deepfreeze units, Chambers gas ranges, Majestic radios, and Coleman oil and gas heating equipment.

"Homegas" systems will also be produced and distributed by the firm.

Right Now—Minneapolis-Honeywell refrigeration engineers are ready to help you with any problem involving refrigeration equipment control. Our engineering experience and research facilities are available to assist you in the design or application of controls to your own postwar products. Make use of this service—there is no obligation. Minneapolis-Honeywell Regulator Company, 2807 Fourth Avenue South, Minneapolis 8, Minnesota. Branches and distributors in principal cities.

Remember...
it was Minneapolis-Honeywell that developed the Polartron System of frost-free refrigeration.

MINNEAPOLIS Honeywell
REFRIGERATION CONTROL SYSTEMS

LITTLE DROPS OF WATER
made harmless with
ANSUL
ICE-X
TRADE MARK REG. U.S. PAT. OFF.

ICE-X quickly cures emergency freeze ups when ice forms at the expansion valve or capillary tube. Harmless to use. Great for Freon, Carrene, or Methyl Chloride systems ...The dependable liquid anti-freeze.

ORDER FROM YOUR JOBBER OR—

EXCLUSIVE NATIONAL DISTRIBUTOR
THE HARRY ALTER CO. 1728 S. MICHIGAN AVE. CHICAGO 16, ILLINOIS
JOBBERS: WRITE FOR SPECIAL PROPOSITION!

A NEW MEMBER of an Illustrious Family

No. 899 Dura-fram Valve

No. 899 Dura-fram Thermostatic Expansion Valve—adjustable.

Check THESE FEATURES!

Four sizes available—providing capacities from 1½ tons to 6 tons Freon, 3 to 11 tons Methyl Chloride.

Furnished with or without external equalizer.

New style forged union connections with interchangeable tail pipes.

PLUS—all the other outstanding design and construction features of the "Dura-fram" line, including "gas charging", stainless steel diaphragms and hermetically sealed construction.

NORMAL CAPACITY—TONS REFRIGERATION

	FREON 12	FREON 22	METHYL CHLORIDE
1.6 ton size	1.6	2.6	3.0
3 ton size	3.0	4.5	5.3
4.5 ton size	4.5	7.0	8.0
6 ton size	6.0	9.6	11.0

This valve rounds out the Dura-fram line to provide capacities in small steps from ½ to 20 tons Freon—1 to 36 tons Methyl.

Write for further information.

USE "Detroit" valves for outstanding performance and complete satisfaction.

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT 8, MICHIGAN

Division of American Radiator & Standard Sanitary corporation

Canadian Representative—RAILWAY AND ENGINEERING SPECIALITIES LIMITED, MONTREAL, TORONTO, WINNEPEG

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators.

15,700 Ranges Are Added To Fourth Quarter Quotas

WASHINGTON, D. C.—Authorization to produce 15,700 domestic electric ranges in the fourth quarter of 1944 has been granted to three additional manufacturers who are able to make them without interfering with war production, announces the War Production Board.

The manufacturers are: A. B. Stoves, Inc., Battle Creek, Mich., 9,000; Malleable Iron Range Co., Beaver Dam, Wis., 3,750; and Newark Stove Co., Newark, Ohio, 2,950.

This group of manufacturers is the second authorized to make ranges in the fourth quarter. Authorized production for the fourth quarter now totals 21,338 ranges.

Of the new ranges, 12,750 will be three-burner, apartment house models, and 2,950 will be standard, four-burner models.

The three-burner models will be used to fill "special orders," orders for new privately-financed Federal Housing Administration war housing projects, and, to the extent that they are not required for these uses, for civilian replacement purposes. "Special orders" are those placed by the Army, Navy, Maritime Commission, War Shipping Administration, Federal Public Housing Authority, the Home Owners' Loan Corp. acting for the National Housing Administration, and export orders.

All the four-burner models may be sold for essential civilian replacement purposes, but WPB expects few, if any, to be available until late in the year. Most of the four-burner ranges will not be on sale until the beginning of 1945.

WPB hopes to authorize the production of a total of 88,000 domestic electric ranges this year, about 16% as many as were made in the year ended June 30, 1941. However, WPB will permit the manufacture of ranges only in plants where labor and facilities not needed for war work are available. The use of labor for range production is subject to the manpower controls established by the War Manpower Commission.

Of the 88,000 ranges, 27,005 were built under appeals during the first two quarters of 1944. This number, plus the 34,120 authorized for production in the third and fourth quarters of 1944, leaves 26,875 of the 88,000 ranges to be authorized this year.

First Helicopter Off Nash-Kelvinator Line

DETROIT—First helicopter to be produced by Nash-Kelvinator Corp. under its contract with the Army Air Forces has rolled off the company's assembly line and successfully completed test flights, announced George W. Mason, president, recently.

New version of the Sikorsky helicopter being built differs radically in appearance from models existing at the time the contract was signed, according to Mr. Mason. "Progress has been made in simplification of controls and improved designs during the process of converting early helicopter blueprints into the assembly line production," he said.

Crosley Sees '41 Level After German Defeat

CINCINNATI — If the predicted cut-back in military goods production after the defeat of Germany is as much as the 40% that has been predicted, Crosley Corp. should be able to resume production of its peacetime products on the basis of its 1941 volume, declared R. C. Cosgrove, vice president and general manager of the manufacturing division of the firm at a "C-Day" conference of distributors here last week.

Crosley officials indicated that there will be no startling innovations in the radios and appliances made by the company prior to 1942.

The distributors saw the Crosley refrigerations and radio models that will be Crosley's first peacetime products, and heard J. H. Rasmussen, commercial manager, and S. D. Mahan, director of advertising and public relations, outline the company's forthcoming program of national and local advertising.

The meeting was the first of a series that Crosley will hold to explain its plans.

Fedders Planning New Peacetime Products

BUFFALO—Fedders Mfg. Co. will be ready to convert from war to peacetime production in short order, the management revealed. The company, which has been producing machine gun clips, will have some new peacetime products, like water coolers and oil coolers.

In G-E Appliance Dept. Shifts

A. M. SWEENEY

Becomes manager of sales of all major appliances in the General Electric line.

C. R. PRITCHARD

Has been appointed to the newly created position of general sales manager of the G-E Appliance & Merchandise Department.

A. L. SCAIFE

Merchandising manager for the A & M Dept.

L. H. MILLER

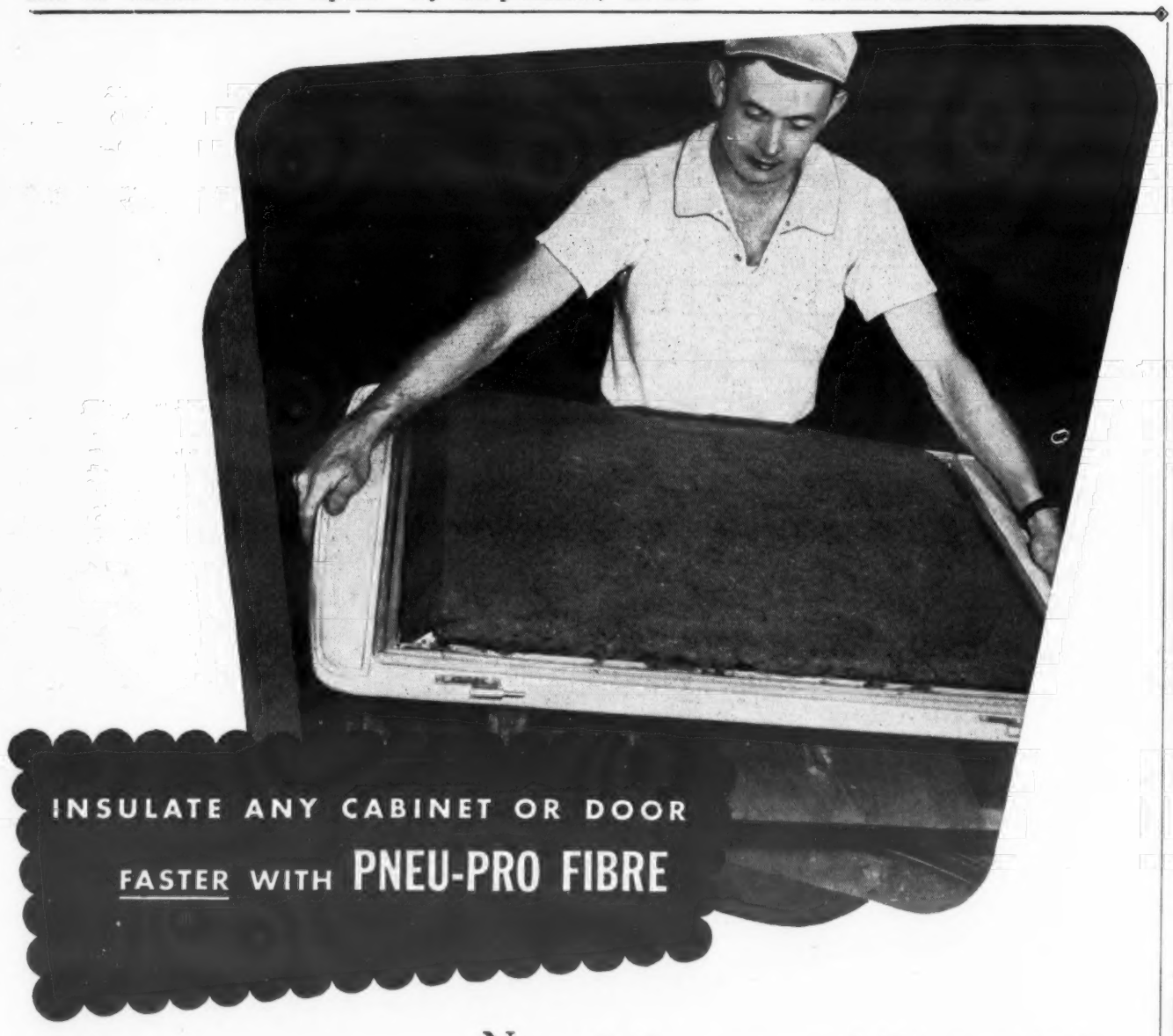
Manager of the household refrigerator division.

C. J. ENDERLE

Manager of the electric sink and cabinet division.

C. W. THELEEN

Manager of sales of all traffic appliances and vacuum cleaners.



Now—with this new patented Pneu-Pro Fibre—you can insulate any size of cabinet in less than one minute. Especially designed for blowing in under pressure, Pneu-Pro Fibre is dustless—completely fills voids in doors and cabinets—has an amazingly low "K" factor. No leaks, no joints, no slabs.

Material requires small storage space—one freight car carries the same amount of material formerly requiring four cars. Shipping units easily handled by one man. Find out more about this highly efficient, modern way to insulate refrigerators—write us today for full details. Wood Conversion Company, Dept. 193-9, First National Bank Building, St. Paul, Minnesota.

WOOD CONVERSION COMPANY
Dept. 193-9. First National Bank Bldg.
St. Paul, Minnesota

Please give me the facts about the Balsam-Wool Pneumatic System with PNEU-PRO FIBRE for refrigerator insulation.

Name.....

Address.....

City.....*State*.....

Balsam-Wool

PNEUMATIC SYSTEM WITH PATENTED PNEU-PRO FIBRE

Norge Advertising To Spotlight Dealers

DETROIT—In anticipation of a quickened reconversion pace as the European phase of the war nears its end, and consequent increased consumer goods output, the Norge division of Borg-Warner Corp. in its Fall newspaper and outdoor advertising campaign will attempt to focus consumer attention on its distributors and dealers throughout the nation, according to M. G. O'Harra, vice president in charge of sales.

The advertisements will appear in 185 newspapers in 126 cities while posting in 118 municipalities will be employed. The campaign will start this month and continue through November in distributor and dealer points.

Under the caption, "Ready for Today," it is disclosed for the first time in newspaper advertising that Norge dealers now are making delivery of new, standard quality "streamlined gas ranges" to those with Office of Price Administration certificates. At the same time, it is emphasized that Norge is "Ready for Tomorrow"—the tomorrow when the company again will be manufacturing other "products of experience" such as refrigerators, electric ranges, home heaters, and washing machines.

The underlying thought of the drive is demonstrated in the poster design in which approximately one-third of the space is occupied with expression of the long-time Norge theme, "See Norge Before You Buy," which also appears in newspaper copy.

Foster Supply Co. To Have New Quarters

BUFFALO—Everett Foster of the Foster Supply Co. has purchased the three-story brick building at 1071-1081 Main St. here. Mr. Foster said he will move his company now at 1549 Hertel Ave. about Oct. 1. The firm deals in air conditioning equipment and refrigeration supplies at wholesale. Purchase price was estimated at $40,000.

THE ROAD AHEAD...

I've hugged my belly to the ground while regiments of big guns stood up hub to hub and split the night with flame . . .

I've felt the earth quake under a tidal wave of tanks that rolled out of our lines and engulfed the enemy and smothered him and beat him down to the ground . . .

I've seen the sky blacked out by a thousand bombers' wings . . . and heard it cracked wide open by the thunder of their bombs . . .

And yet . . . through the ruins of war, I've seen the road ahead.

Out here I've seen the power of America at war, the might of free-born men who work and fight to keep their freedom. And I believe this power to destroy can be the power to create.

And looking down the victory road I see a new America . . .

I see new cities rising up . . . new farms . . . new roads, new homes, new schools . . . new factories that will plan and build for peace the way they planned and built for war.

I see a place for me, and for the kids I'll have someday . . . a place for every man . . . a future to look forward to . . . a job to do . . .

I see a chance to live and grow in a stronger America . . .

After we've won the war . . .

While we're winning the peace!

. . .

Here at Kelvinator, all the new strength, all the new power to produce, all the new ability and skill and knowledge that have come to us so quickly under the driving necessity of war will be turned to production for peace—as fast as possible.

That means that Kelvinator will build more and finer electrical appliances than we have ever built before. It means Refrigerators, Electric Ranges, Home Freezers and Electric Water Heaters, better and more useful than have ever served in any household.

This will be our part in the building of a greater, a happier nation. For we believe all of us owe to those who have fought to preserve it, a strong, vital and growing America—where every man and every woman will have the freedom and the opportunity to make their dreams of a better life come true.

LOOK AHEAD WITH N·K KELVINATOR

DIVISION OF NASH-KELVINATOR CORPORATION

Kenosha · Milwaukee · DETROIT · Grand Rapids · Lansing

AWARDED TO NASH-KELVINATOR CORPORATION, PROPELLER DIVISION

SENSATIONAL AMCOIL "COMFORTAIRE"

a new development in air conditioning

LICENSED UNDER LATENT COOLER PATENTS

REMOVES UP TO 90% OF LATENT HEAT

and the sensible heat is variable

The new AMCOIL COMFORTAIRE CONDITIONER removes up to 90% of the humidity from the air without materially affecting the temperature. Completely automatic wall mounted models, when connected to water cooled condensing units, produce true air-conditioning that heretofore was only possible with expensive reheat systems costing four times as much to operate. COMFORTAIRE creates dry, healthful, comfortable air with no low-temperature shock as in conventional coolers.

USE AS A DEHUMIDIFIER

The AMCOIL COMFORTAIRE is also the answer to a long-felt demand for inexpensive de-humidification equipment for many industrial uses. A few are as follows:

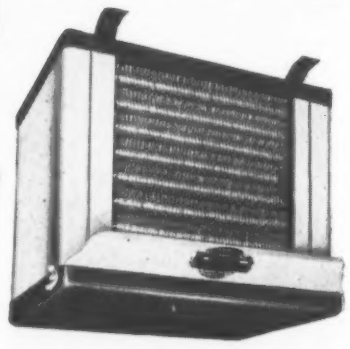
PARACHUTE STORAGE	PAPER STORAGE	NYLON & SILK INDUSTRY
TEXTILE INDUSTRY	DRAFTING ROOMS	INSTRUMENT ASSEMBLY ROOMS
PRINTING PLANTS	CANDY STORAGE	PAINT SPRAY DRYING ROOMS

Can be used as a liquid and water reclaimer in Aircraft, Ships, and Lifeboats and numerous other Industrial Applications.

ADDITIONAL AMCOIL UNITS

meet any refrigeration requirement

AMCOIL FOOD CONDITIONER. A wall mounted unit combining high, controlled humidities up to 85% with temperatures of from 35° to 40° F. Designed for walk-in boxes it *automatically* preserves foods without dehydration. Can be used effectively to store meats, fruits and vegetables, butter, cheese, eggs, flowers, bakers and confectioners products, to retard dough, etc.



AMCOIL ALSERVICE OPEN FACE COOLING UNIT. Is designed for efficient cooling and serves as a general utility unit in preserving foods and other commodities where a forced draft cooling unit is required. Streamlined design, in attractive grey and black color scheme, it can produce temperatures down to 34° F.

AMCOIL ALSERVICE DOWN DRAFT COOLING UNIT. Is a new idea in refrigeration. It is a straight cooling unit that, should the need for humidity control arise, by the addition of certain parts, the unit is converted into a cooling and high controlled humidity FOOD CONDITIONER with all the advantages of that equipment.

Factory Representative
P. J. BURRILL
800 North Clark Street, Chicago, Illinois

AMCOIL

AMERICAN COILS CO.

25-27 LEXINGTON STREET · NEWARK 5, N. J.

Inside Dope

By George F. Taubeneck

(Concluded from Page 1, Column 1)

have been exchanging pounds for dollars earned in her Dominions and Colonies, thus tying their postwar purchases to her manufacturers and adding to her own ability to buy from us on demand.

France, DeGaulle — or — otherwise, has $2,500,000,000 in gold over here, waiting to be converted into goods.

Switzerland has more dollar exchange than ever before in her history (she has been supplying our lush watch market while American watch producers work on war items). Holland, Belgium, Sweden—yes, and Russia—all have swollen gold resources at their command.

In other words, the rest of the world is far from broke, will be able to absorb an all-time record high of American goods. It's entirely possible that the United States will be exporting six billion dollars worth of goods a year.

In addition to Alaska, there are the Atlantic islands we have leased from the British, the former Japanese islands we shall take over in the Pacific, and possible new territories we shall help develop in Africa and the Near East. All have been ploughed with American implements; all may harvest commercial crops for us in the future.

Women War Workers Appreciate Appliances

War has taught millions of housewives the economic value of time-saving home appliances. Especially is this true of the women who have taken up factory work.

According to the Department of Labor, married women over 35 years of age account for two-thirds of the increase in female employment which has occurred during the war. Most of these ladies are trying to keep up homes even while working, and they long ardently for everything from clothes washers to dishwashers.

At least 3 million of them, however, are now living in somebody else's homes, or in apartments, hotels, trailers, or whatnot. That means, when their men come home, that they'll want to locate in new private home units.

If, as the statisticians believe, more than half of this new female laboring force will remain employed after the war, then you can bank on it that they'll want home appliances as no group of women has ever desired them so desperately before.

The Glamourous Item— Automatic Laundry

"Wash Without Work!" What an appeal for housewives that appeal has! While washing dishes may be the most regularly onerous and inescapable household task, washing clothes is without doubt the most *work*.

Thus it was that the *automatic* home laundry, which was just getting off to a sockdolager of a start before the war, had such an instantaneous appeal to housewives. It also had an instantaneous appeal to distributors, who practically fought over the few franchises available.

It was the *automatic* feature of the electric refrigerator which gave it that original wallop. And it is the operates-itself nature of the automatic laundry which has equal, if not greater appeal, in the case of the first truly plug-in washing machine.

When we go out on a limb to make a statement like the following, we know for sure that we'll incur the wrath of all our manufacturer friends and customers who won't have an automatic laundry to sell.

Also we risk our somewhat undeserved reputation as a gold-plated prophet of future events (a reputation now tarnished, to be sure, following the failure of Von Rundstedt and his clique to overthrow Hitler in May, 1944).

But we say this, nevertheless, flat-footedly and unequivocally:

Any dealer who isn't selling an automatic laundry in 194x will be out in the cold. He will be like the dealer trying to sell an icebox against an electric refrigerator.

Postwar Success Is A Sure Thing

For the title of "Glamour Appliance of the 1940's," the automatic laundry will be competing against the home freezer and the portable air conditioner. We *believe* that the latter two products will be hot stuff. But we *know* that the automatic laundry will be. Sales and *sales interest* just before the war proved this thesis. It's one item that can't miss, providing dealers recognize its tremendous appeal and put behind it the sales effort it deserves.

No one will argue that the old-fashioned washing machine won't sell after the war. Ice boxes enjoyed some of their biggest years following the advent of the all-powerful electric refrigerator.

But if dealers see in the automatic laundry the same opportunity they had in the electric refrigerator for *enormous volume,* the automatic laundry will be a sensation in the industry, because intrinsically it has everything it takes.

The smart dealer will go sled-length to promote this product. It has a high unit price, which means good unit profit. Every wired home is a prospect. Inasmuch as only 300,000 are in use, the only replacement market is that of the homes which own old-fashioned washing machines, which should be push-overs.

What's more, the homes which don't own washing machines are prospects. Nearly everybody has had sad experiences with the commercial laundries during wartime. All of us who have sent our shirts out would be happy to get the decent laundering job and far longer wear which would be possible with an automatic laundry in our own home.

Two Strong Arguments For Automatic Unit

As for the housewife who does her own washing, there is not only the saving-in-work argument, but also the saving-in-time.

The woman using a wringer type washer lifts between 400 and 900 pounds of clothes and water, depending upon whether she uses a hose or buckets to fill the machine and tubs with water. That required energy is equivalent to shoveling eight tons of coal into a furnace! Added to that task is the job of cleaning wet floors and the washing machine itself afterwards.

What husband, if he had to do the job himself, would want his wife to go through an ordeal like that every week? What wife wouldn't give her chance at a week-end with Charles Boyer for deliverance from such slavery?

With the automatic laundry the home-maker can put the clothes in at night, turn the machine on, and

(Concluded on Page 7, Column 1)

Do You Know a better way

...to heat a house?
...to cool a house?
...to heat water?
...to refrigerate food?
...to build a temperature control?
...to make an automatic valve?

If you have developed a better way to do any of these things and if your ideas can be protected ... *here* is your opportunity!

The AiResearch Manufacturing Company is preparing *now* for the postwar period and is in the market for ideas, inventions and products for postwar development, manufacture and sale.

AiResearch has skilled engineering and production groups at present engaged in development and manufacture of oil coolers, intercoolers, exhaust heat exchangers and cabin pressurizing equipment for wartime aircraft. In peacetime this organization will continue the job of improving aircraft, for which it has three times won the Army and Navy "E" since Pearl Harbor. But also its fully equipped laboratories and manufacturing plants will be able to develop improved peacetime products for better postwar living ... and its well-organized sales force will be given the job of their promotion.

On an outright purchase or royalty basis, AiResearch is ready *now* to negotiate for exclusive rights to those ideas and inventions believed practical to its abilities and resources. AiResearch would like to hear about *your* idea. Write as fully as possible. You will receive a prompt answer and your correspondence will be held in confidence.

Address: POSTWAR PLANNING COMMITTEE
AiResearch Manufacturing Company
9851 Sepulveda Boulevard, Los Angeles 43, California

AiResearch
DIVISION OF
THE GARRETT CORPORATION

Inside Dope

By George F. Taubeneck

(Concluded from Page 6, Column 5)

go to bed. Or, a load can be put in the machine two or three times a day, the dials set, and the fortunate owner can then go on serenely with other details of her housework.

Spin-dry arrangements will remove practically all the water from the clothes, thus speeding drying time on the line, and eliminate wringer-wrinkles which retard ironing and harm fabrics.

Every veteran of the electric refrigerator business knows that while pride-of-possession and convenience were the real reasons people bought electric refrigerators in the Roaring Thirties, "economy" was the argument used by salesmen. Reason: it justified in the minds of the purchasers their purchase of something they wanted for other reasons.

Economy Story Will Be Stressed

It seems quite likely that a parallel will be found in the Fabulous Forties with the automatic laundry. While convenience and pride-of-possession will be the real motivations for the purchase, "economy" will characterize the arguments used in the sale.

These "economy" arguments will include economy of work, time, soap, hot water, health, drudgery, injury, household space (an important item in new homes); and clothes-life, plus better appearance.

The infirm, rheumatic, arthritic, convalescent, hard-of-hearing, and others in the handicapped group, can avoid the dangers of washing clothes in damp, ill-lighted, ill-ventilated basements.

Installable anywhere, the automatic laundry can be placed in the kitchen, recreation room, utility room, or even a large bathroom.

Last fall Walter Daily surveyed Bendix dealers. Here are some of the up-and-at-'em facts he gleaned:

544,127 women plan to buy an automatic laundry within two years after the war, to replace their present washers.

496,137 women, who do not now have washing machines, plan to buy an automatic laundry.

The above shows a potential market of 1,040,264 home laundries, with a retail value of $184,247,520, at prewar prices.

Surveys Indicate Tremendous Sales

J. Walter Thompson Co., New York advertising agency, maintains a continual Consumer Panel Survey. They try to find out from day to day what products women are interested in, what they buy, and what they intend to buy. They asked the following questions in the *urban areas*:

"How soon, after the war, will you buy a new washing machine?"

Here are the answers:

22.8%	said within two years
18.6%	said within five years
25.8%	said eventually
32.8%	didn't know
100.0%	

The above reduced to units would be:

3,660,853	within two years
3,083,795	within five years
4,436,503	eventually
11,181,150	

The replacement market is tremendous. The WPB survey on washers showed that:

11% are 15 years old or more
20% are from 10 to 14 years old
39.7% are from 5 to 9 years old
8.2% are 4 years old
10.5% are 3 years old
10.0% are 2 years old

The Consumer Panel Survey (J. Walter Thompson) showed some other interesting figures. These are given in the following chart:

Type Washer	Now Own	Type Preferred For Next Purchase
Wringer	86.4%	24.6%
Spinner	8.5%	10.2%
Automatic Washer	4.7%	27.6%
Don't Know	0.4%	.....
	100.0%	62.4%

The wringer type, with its hard work, is decidedly in disfavor. The spinner gained a little—1.7%. But the automatic gained nearly *4 times*. It must be assumed women's revolt against washday drudgery, physical deformities, child care, and laundry problems such as diapers and scarcity of domestic help have caused them to turn to the automatic washer for relief. Certainly the mechanical condition of their present washer does not explain this trend.

Common Objections Answered Easily

Answers to some common objections:

Q. It's in the pioneering stage.

A. It certainly *was* a few years before the war and to a degree perhaps still is. In 1940 and 1941, however, sales were doubling; people had caught on. The *war* made the automatic washer. It now has a public acceptance comparable to that accorded the electric refrigerator in the early thirties.

Q. I'm a dealer and I can't install and service an automatic washer—nor can I afford any home service women to make the post-sale demonstration.

A. You don't need to provide for installation, service, or home service in most urban areas. All three will be the duty of the distributor.

Q. Can I sell automatic washers in the same manner as radios?

A. Emphatically not. The automatic washer is a *specialty*. Sales training, demonstration, and other activities are important in the latter business. Selling automatic washers is harder work than radio, but the rewards are greater.

Q. Automatic washers use too much hot water.

A. The plain facts are that the automatic laundry can handle *more* clothes—nine pounds as against six pounds—per washing. An additional fact is that even this washing requires less hot water to do the job—between 16 and 20 gallons as against 22 to 35 gallons for the conventional type.

Q. Will automatic washers work well in hard-water areas?

A. Yes, but the water softener *must* be used—then the washing is done in the usual way.

There is a tremendous waiting market for this glamourous appliance. It has a very good profit margin. All manufacturers will select their dealers carefully. The older prewar dealers will of course get preferential treatment. But there is room for more good dealers in the picture, and if they are willing to give it the proper *effort*, they can't miss!

Association Sees 3 Million Sales

The American Washers & Ironer Manufacturers Association has approved a program for postwar planning and has empowered its president, John Wicht of General Electric Co., to name a committee to direct the new program.

To estimate future sales, Mr. Wicht approximated that a return to normal yearly purchases of washers coupled with an abnormal accumulated demand caused by war indicated a sale of nearly three million washers during 1945 and possibly 2½ million for the two succeeding years.

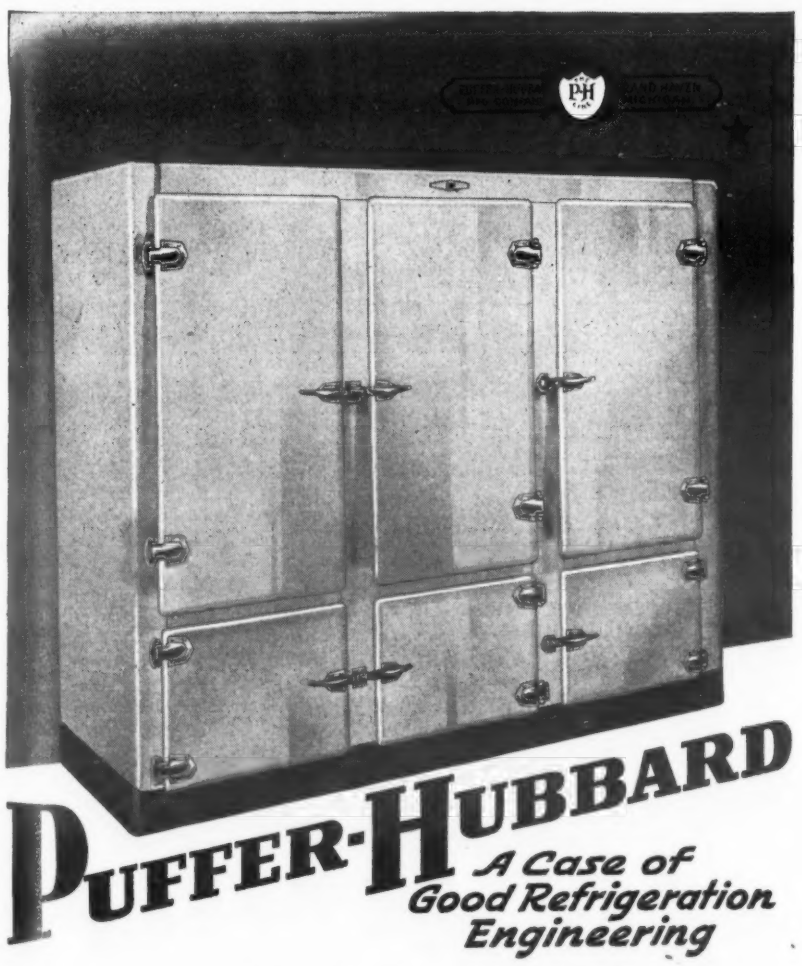
Urging that the industry plan to actively promote inclusion of laundry units in new homes built after the war, Mr. Wicht pointed to surveys which indicate that nearly one million houses will be constructed annually in the first five years after the war's end. Postwar marriages will also increase the number of new homes.

Educational Job Is Still Needed

Publicity and advertising will have an important educational job to do in encouraging many of the new families to do their laundering at home. A movement is underway to issue manuals of instruction on washing and ironing to various secondary schools so that the new generation of young women will learn advantages of home laundering.

Mr. Wicht further recommended informative labeling of products to provide salesmen with selling points and to give the public assurance that these points are supported by the manufacturers' statement.

About retail salesmen themselves, Mr. Wicht predicted that with the advent of new and unusual contributions to consumer interest, those industries making the contributions and intelligently and actively publicizing them will attract the cream of the selling crop. He further wagered that with new designs, new materials, and even new products, specialized selling will once more be necessary.



PUFFER-HUBBARD
A Case of Good Refrigeration Engineering

Your inquiry is invited now. Ask us about available equipment.

Practically every type of commercial refrigeration cabinet including Refrigerated Display Cases—Beverage Coolers—Walk-in Coolers—and Reach-In Cabinets . . . each bearing the mark of a good case.

All porcelain exteriors and interiors. Equipped with patented and exclusive Grad-U-Matic Air Conditioning Systems.

PUFFER-HUBBARD MFG. CO.
★ *The Mark of a Good Case*
GRAND HAVEN, MICHIGAN, EST. 1898

The Pre-War PHILCO Refrigerator Pioneered with this Modern Frozen Food Compartment

Watch Philco in Refrigeration After the War

Years of research and experience will back the frozen storage facilities of the Philco Refrigerator of the future.

Wartime living has proved the importance of frozen storage in the home. It is a *"must"* for the refrigerator of the future. Philco engineers foresaw the need for this modern method of food keeping by being the first to offer a complete line of refrigerators with full size, separate frozen food compartments *in addition* to the regular ice cube chamber.

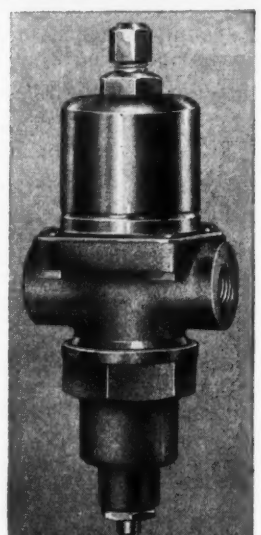
The Philco Refrigerator of the future will give you this vital feature to sell...backed by years of pioneering research and tested by years of actual use. This is but one example of the independent engineering and Advanced Design which Philco has brought to refrigeration. It is a hint of the still greater developments . . . *and greater sales opportunities*...which will come from the Philco laboratories when peacetime research is resumed. *Watch Philco in Refrigeration after the war!*

Listen to the Radio Hall of Fame Sundays, 6 to 7 P.M., E.W.T., Blue Network.

PHILCO
Famous for Quality the World Over

AMINCO
WATER REGULATING VALVE

Quiet • No Chatter • Practically friction-free • Maximum flow with minimum head pressure differential •



Double Bellows Seal • Removable Body Seat • For all refrigerants —except ammonia • Standard connections 3/8" x 3/8" F.P.T. • Pressure Controlled •

No. 614

Aminco No. 614 water valve regulates the amount of water passing through water-cooled condensers. . . .

This valve is helping to keep systems in tip-top condition and because of its close control action it provides insurance of longer life for water-cooled condensers.

Sold, as always, through jobbing channels, it is an invaluable aid to the service-man concerned with keeping installations operating at full efficiency.

For more details see Bulletin No. 15.

AMERICAN INJECTOR COMPANY
1481 Fourteenth Avenue DETROIT 16, MICHIGAN

Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles, Calif.
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.

Maintenance & Service Contract Helps Both Equipment Owner & Distributor

Washington, D. C., Firm Aims to Keep Systems Running for Many Years

WASHINGTON, D. C.—Charging the refrigeration and air conditioning customer for complete maintenance and service from the day his equipment is first installed is proving highly satisfactory to both owner and distributor alike, in the opinion of E. G. Carroll, president of the Washington Refrigeration Co., York dealer here. Perc S. Erisman, Jr., who has long been active in the air conditioning division of the Merchants & Manufacturer's Association, is vice president of the organization.

Under the "York Certified Maintenance Plan" which was developed by the York Ice Machinery Co. of York, Pa., a contract for the maintenance and servicing of refrigeration or air conditioning equipment is signed with the owner at the time the machines are installed. This contract is separate from, and is not added to, the original contract price.

Mr. Carroll explains that the maintenance contract does not void the usual warranty for parts, which extends for one year from date of installation. Under a plan developed by the air conditioning division of the Merchants & Manufacturers Association, all refrigeration and air conditioning distributors in the Washington, D. C., area extend a warranty on parts for one year, and give the customer 60 days free adjustment on compressors and other parts of the system. This service is included in the original contract price.

It does not, however, "guarantee" the entire operation of the system for one full year from date of installation, which is common practice in many parts of the country.

According to Mr. Carroll, the basic idea behind the York Certified Maintenance Plan is the same as that which has been in use by the large elevator companies for many

(Concluded on Page 9, Column 1)

Contract for Refrigeration Maintenance

York Certified Maintenance

Agreement No. _____

WASHINGTON REFRIGERATION COMPANY

YORK CERTIFIED MAINTENANCE

Refrigeration

TO

We propose to furnish York Certified Maintenance on York Refrigerating equipment located at _____
(Street) (City) (State)

The equipment covered by this proposal includes the following compressors and the systems described below:

1. Compressor (H. P.)_____(Ser. No.)_____ 3. Compressor (H. P.)_____(Ser. No.)_____
2. Compressor (H. P.)_____(Ser. No.)_____ 4. Compressor (H. P.)_____(Ser. No.)_____

Description of system(s): (Evaporators, Condensers, Economizers, Cooling Towers, etc.)

We agree to make at least_____inspections of this equipment each year and at the time of such inspections to perform the normal services listed below:

1. Inspect equipment for refrigerant leaks.
2. Repair all leaks in refrigerant mains.
3. Clean commutators on motors.
4. Clean all motor housings.
5. Clean condenser once a year on water-cooled systems.
6. Clean lint and dirt from air cooled condensers.
7. Clean condensing units.
8. Clean all strainers.
9. Adjust tension on all belts.
10. Lubricate all moving parts.
11. Check operating pressures of condensing units.
12. Purge air from systems.
13. Check refrigerant in system.
14. Charge refrigerant into systems as necessary.
15. Inspect and adjust temperature controls.
16. Inspect and adjust safety controls.
17. Inspect and adjust all valves.
18. Adjust water regulating valves.
19. Check operation of refrigerant controls.
20. Clean drip pans.
21. Remove cylinder heads, check seating of valves and grind if necessary.
22. Inspect oil in compressors and replenish with York oil if necessary.
23. Paint equipment when necessary.
24. Supply emergency service between regular inspections if required.

We also agree to:

Furnish such supplies, repair and replacement parts and labor as are required to maintain this equipment in good operating condition. All repair and/or replacement parts furnished hereunder will be only genuine York renewal parts or those approved by the manufacturer of the equipment covered by York Certified Maintenance.

43717 ONE

This is the first page of the contract form employed by Washington (D. C.) Refrigeration Co., York dealer, for the year-around maintenance and service operation it offers to owners of refrigeration and air conditioning systems.

It is understood that:

1. All work is to be performed during our regular working hours. If for any reason, except emergency service, you request that work be done beyond regular working hours, you agree to pay the difference between regular and overtime labor at regular billing rates.
2. We shall not be required to furnish any items of equipment as are recommended or required by Insurance Companies, Government, State, Municipal or other authorities.
3. Any alterations, additions, adjustments or repairs made by others, unless authorized by us, shall terminate our obligations hereunder.
4. York Certified Maintenance furnished hereunder shall not include the normal function of starting and stopping the equipment described above which function includes the opening and closing of valves, normally installed to protect the equipment against damage, the defrosting of evaporators, or for obtaining proper operation.
5. In the event we are required to make repairs and/or replacements, or emergency calls, occasioned by the improper operation of the equipment, or due to damage caused by electrolytic action (either battery action or stray currents), or caused by flood, lightning, fire, elements, rebellions, riots, strikes, labor troubles, civil commotion of any kind, or by any cause beyond our control, you shall reimburse us for the expense incurred in making such repairs and/or replacements, or emergency calls, in accordance with the current established rates for performing such service.
6. In consideration of the nominal charge made for York Certified Maintenance, we shall not be liable for the operation of the equipment nor for injuries to persons, or damages to property, except those directly due to the negligent acts or omissions of our employees, and, in no event, shall we be liable for consequential damages. We shall not be held liable for expense incurred in removing, replacing or refinishing any part of the building structure necessary to the execution of this Agreement. We shall not be held liable for any loss or damage due to delay in furnishing labor, or material caused by reason of the operation of any preference rating system or orders established by governmental authority or for any other cause beyond our reasonable control.
7. The amount of any past, present or future occupation, sales, use, service, excise, or other similar tax which we shall be liable for either on our own or your behalf or otherwise, with respect to our obligation to furnish York Certified Maintenance, shall be in addition to the sum paid by you under this proposal and shall be paid by you upon the rendition of separate invoices covering such tax.

York Certified Maintenance will be furnished by us from_____ to _____

_____inclusive, for the sum of:

First Year $_____ per _____
Second Year $_____ per _____
Third Year $_____ per _____
Fourth Year $_____ per _____
Fifth Year $_____ per _____

These payments are payable in advance as follows:_____

_____

_____. This agreement shall remain in effect for five years from the date of approval by us, unless terminated by either party at the end of any yearly period by giving written notice to the other party thirty days prior to the end of any such yearly period.

This proposal contains the entire agreement and shall become effective when accepted by you and approved by us.

Respectfully submitted,
WASHINGTON REFRIGERATION COMPANY

By _____
Representative

The above proposal is hereby accepted this_____day of_____, 19____, with the definite understanding that there are no verbal agreements or understandings changing or modifying this agreement as written.

_____
Firm Name

By _____

Approved this_____day of_____, 19____

WASHINGTON REFRIGERATION COMPANY

By _____

43717-A—2 TWO

The second page of the contract clearly states, as does the first page, just what services Washington Refrigeration Co. will perform on a contract basis.

A name to remember...

for refrigeration valves, fittings and Accessories

The Weatherhead Company was privileged to serve the refrigeration industry before the war, is serving it to a restricted degree today, and looks forward with anticipation to a general resumption of our trade relationships after the war. If you are engaged in postwar planning now, we invite you to avail yourself of our laboratory, research and engineering departments. You will find us most cooperative.

Look Ahead with W

Weatherhead
THE WEATHERHEAD COMPANY
CLEVELAND, OHIO
Manufacturers of vital parts for the automotive, aviation, refrigeration and other key industries.
Plants: Cleveland, Columbia City, Ind., Los Angeles
Canada—St. Thomas, Ontario

Buy War Bonds

Yearly Contract Charge Rises As Equipment Grows Older

(Concluded from Page 8, Column 5)

years. Passenger and freight elevators in large buildings are expected to perform perfectly at all times, and must be maintained in top-notch condition for the safety of the public.

"There is no reason," Mr. Carroll asserts, "why a refrigeration or air conditioning system should not be just as good, after 10 years of service, as an elevator, or an aircraft engine. By providing maintenance and complete service during the entire useful life of the machine we are extending its life, and its ultimate value to the owner. When this fact is made clear to the owner, he usually likes the idea of our maintenance contract, and is willing to pay for it."

Under the York plan, the system is inspected once each month while the maintenance contract is in force. All parts and all service necessary for the satisfactory operation of the system are included in the service contract price. Some 24 items, shown in an exhibit of the agreement itself, which is printed on Page 8, illustrate the completeness of the contract.

RATES VARY WITH SIZE, YEARS

The flat rate paid by the owner for this type of service varies with the size of the installation and the years that the system has been in operation. Maintenance and service on a 2-hp. system for the first year, for example, is $110. The same system costs the owner $145 per year for the second, third, fourth, and fifth years, inclusive. From the fifth to the tenth year 10% is added to this price.

On a 10-hp. system the cost for the first year is $210 and for the next four years $245 per year. From the sixth to the tenth year, inclusive, 10% is again added to the price.

Mr. Carroll reports that under no circumstances will an old system be accepted under the York Plan of Certified Maintenance until it has been put in first class operating condition. The system must be overhauled completely, before a new service contract can be signed with the owner.

Mr. Carroll feels that the York Plan gives the owner an entirely new idea of the value of his refrigeration or air conditioning system. When the owner knows he must pay for maintenance in advance, he does not expect the system to run forever without service charges or maintenance costs, Mr. Carroll states.

CUSTOMERS PAY IN ADVANCE

"The great majority of our customers have been happy to accept our maintenance plan," Mr. Carroll states, and goes on to say that "making payments by the month, or for a full year in advance has not been a hardship to the owners, compared with the many advantages of having their refrigeration or air conditioning systems in perfect operating condition at all times."

Questioned about the existing regulations over the installation of new air conditioning systems, Mr. Carroll expressed the opinion that in certain instances restaurants have suffered most . . . due to the lack of an air conditioning system, or the inability to obtain "Freon."

"Many restaurants in Washington are operated in spaces where there is no adequate ventilation," Mr. Carroll said, "and when an air conditioning system cannot be obtained, or the existing system is shut down for lack of refrigerant, it not only works a real hardship on the owner, but on other restaurants as well. All of our Washington restaurants are overcrowded . . . and when one restaurant cannot be operated because of the lack of air conditioning, it simply throws an additional burden on the balance of the restaurants in the community."

Mr. Carroll feels that while the War Production Board has done a splendid job of allocating materials to keep the industry going, that in certain cases more consideration should be taken of the actual need for air conditioning with relation to the existing circumstances.

Consumers Urged to Save Money Now For Postwar Appliance Purchases

NEW YORK CITY—Greater promotion of systematic savings plans so that the public can build up an actual backlog of orders for postwar home appliances and other products was urged at a forum conducted here recently by the Sales Executives Club of New York.

Speakers were C. William Green, regional manager for the Second Federal Reserve District of the Committee for Economic Development; A. J. Flattery, assistant to the president, Merchants National Bank & Trust Co., Syracuse; Maurice Firestone of Carrier Corp.; and Harold Carlson, architect.

Tracing the progress of such efforts thus far, the speakers asserted that for the program to achieve maximum success, much greater cooperation is necessary on the part of large manufacturers and big city banking institutions in promoting this move.

Greater strides in effectively promoting such programs to date have been made in smaller cities and rural areas, according to the speakers, who emphasized that to get active participation by a public long accustomed to time payments dramatic salesmanship is needed to promote the idea of systematic savings for advance payments on postwar merchandise.

If postwar planning is to have some sound foundation of actual cash support by the public, Mr. Flattery declared, the planners must attempt to get the public to put money aside now through systematic savings for specific purposes rather than count too heavily on money now in savings accounts or in war bonds.

Expressing belief that people will not part with savings unless assured of steady employment, he further asserted that "there has been too much loose thinking about cashing in war bonds to buy houses, cars, appliances" and other things just as soon as the war ends. The nation's economy would be badly hit by immediate postwar cashing of war bonds, he warned, inasmuch as the government would be forced to raise billions to pay them off.

THE WEBER LINE OF STORE EQUIPMENT WILL BE THE SENSATION OF THE INDUSTRY

New Revolutionary Features

COMMERCIAL REFRIGERATOR DISPLAY CASES - REACH-IN CABINETS - WALK-IN COOLERS SODA FOUNTAINS . . . . . ROLL-A-DOOR FROSTED FOOD AND ICE CREAM CABINETS - HOUSEHOLD FROSTED FOOD CABINETS

PLAN NOW TO SELL THE WEBER LINE INSTEAD OF AGAINST IT

ENGINEERED FOR *Post-War* MERCHANDISING

YEARS AHEAD IN DESIGN

WEBER first in the industry

To Fly Army and Navy "E" Flag
To Build World's Largest Knock-Down, Self-Contained Refrigerators
To Make Portable Walk-In Refrigerators

Investigate THE WEBER LINE before you make any Post-War sales plan. Exceptional profit possibility awaits those concerns who can qualify.

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WEBER SHOWCASE & FIXTURE COMPANY INC.
P.O. Box 2018, Terminal Annex
Los Angeles 54, California
Dept. "C"

Gentlemen:
Kindly send me complete data on the Weber Franchise Territory for the
Name
Company
Position
Address

WEBER SHOWCASE & FIXTURE CO. Inc.
5700 Avalon Blvd., Los Angeles, Calif.

EST. WEBER 1898

COOL DRINKING WATER ALWAYS AVAILABLE
OASIS
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OASIS means the best in clean, correctly cooled drinking water . . . 24 hours a day year in year out! Made by EBCO . . . pioneers in electric water coolers.
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Deepfreeze-Detroit Sold Frozen Food From the Start as Part of Its Service

Pioneer Distributor Plans To Name Dealers To Sell Both Cabinets & Food

By Phil B. Redeker

DETROIT—The full market potentialities of the home freezer will be realized if it is sold as a "service" and not just another appliance, and Deepfreeze-Detroit, Inc. is making plans to sell its Deepfreeze units—and the food that goes into them—on that kind of a basis after the War, declares Lee D. Hanson, manager of the firm.

In fact, the Deepfreeze-Detroit distributing organization did just that before the war, taking orders by telephone and delivering the foods by refrigerated trucks, and the growing demand for that type of service (which was eventually blocked off by food rationing, prohibition of deliveries, etc.) convinced Mr. Hanson that it was the right way to operate a home freezer distributing organization.

Deepfreeze-Detroit, Inc. has a distributor's franchise for 33 counties. Its officers are: E. H. Welker, president; Frank J. Brady, vice president and general manager; and Ernest P. LaJoie, secretary-treasurer. The company's executives plan to establish dealers throughout the territory who will operate in much the same way that the Detroit operation is carried out.

Since the Detroit distribution setup on Deepfreeze was one of the pioneers in the retail sale of home freezers, let's have Mr. Hanson—a veteran of 20 years of electrical appliance selling—recount some of the experiences he has had in selling this item, and the things learned from those experiences.

"We started out to pioneer it just like any other appliance," he began. "We put salesmen out, we got some grocery stores to permit us to put demonstration models on their floors, and we gave away a sample assortment of frozen foods with the purchase of a cabinet.

'NEWNESS' EARLY APPEAL

"It was tough plugging for a while and out of our first 100 sales the majority were made to people in the upper-income brackets of the type who like to buy new things. The others were sold to people with medium or low incomes whom we convinced that the Deepfreeze unit would bring economies in food buying as well as convenience. I remember that one purchaser in that first hundred lived in what was virtually a shack.

"In analyzing the other sales of units we made before the war, a good percentage of them were to people in the middle income brackets and most of the rest were to people in the higher income groups. Many sales were made to farmers.

"Some of our sales were the result of a special promotion such as an advertisement we ran in the Detroit **News** during the hunting season. It showed a man standing alongside his Deepfreeze unit and saying 'What'll you have, bear or deer?' The advertisement appeared on a page that was full of stories on hunting, and which also included a story to the effect that the State Conservation Department had okayed a regulation permitting the storage of fish and game over 30 days. We sold 28 units from that advertisement."

When the war came, and brought with it such things as food rationing, curtailment of transportation and delivery facilities, and a lowering in the quality of the general line of foodstuffs, the rush to get a home freezer unit was on.

"I realize that the wartime conditions have resulted in a distorted picture of the demand for our units," says Mr. Hanson. "But I say also that these wartime conditions will give an impetus to peacetime sales that will put the sales development of this item years ahead of what it might have been under normal conditions, merely because it has dramatized the value of such equipment.

"And I further say this—that we have never had to repossess a Deepfreeze unit, and a great many of our sales, perhaps the majority of them, have been made because a user had described in glowing terms the value of his freezer to some friend."

On what basis then, will the Deepfreeze be sold after the war is over?

To Mr. Hanson's way of thinking, the home freezer is just about the perfect appliance to sell. It offers the features of convenience and time saving, and of pride of possession in a new way of living, but further than that, it can be demonstrated that it will offer economies that enable the unit to pay for itself and to pile up savings in years to come.

THE SAVINGS STORY

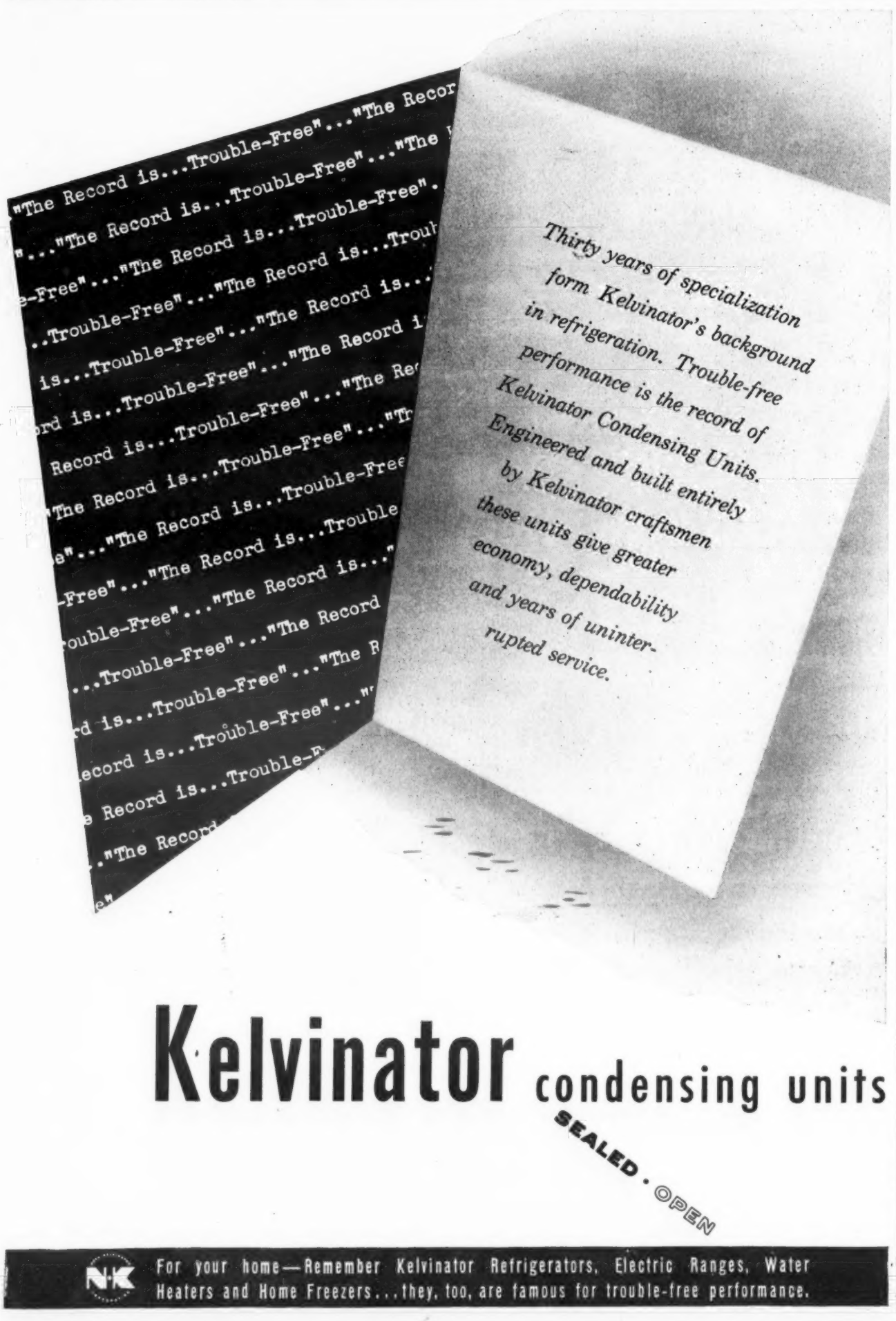
"Let's take a couple of simple examples on this point of quantity savings," says Mr. Hanson. "A 5-lb. pack of quick-frozen peas sells

(Concluded on Page 11, Column 1)

Elements In a Successful Home Freezer Distributorship

Frank J. Brady (left), vice president and general manager, and Lee D. Hanson (right), sales manager, of Deepfreeze-Detroit, Inc., look over some of their present "stock" in the form of frozen lima beans and a frozen dressed chicken. While WPB restrictions prevent them from selling the Deepfreeze units, they have continued to supply users with frozen foods in large or small-size packages, thus continuing the kind of complete service which they believe is vital in selling the home freezer.

This view (prewar) of the Deepfreeze-Detroit headquarters reveals a modern showroom, an aid in selling a new type of appliance. The sidewalls have huge photographic panoramas showing how quick-frozen foods provide the best in eating.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OFFICES IN PRINCIPAL CITIES · WEST COAST STOCK LOS ANGELES (15) · JOBBERS EVERYWHERE

Economy of Quantity Purchases Called Major Key To Home Freezer Sales

(Concluded from Page 10, Column 5)

now for $1.25. To get the equivalent amount of peas suitable for eating in the 12 oz. packages would cost you close to $2.

"Or take ice cream—which many people probably don't associate with a home freezer cabinet. But some of the greatest savings can be shown on this item, because we are making it available for $1.35 a gallon, whereas an equivalent grade of ice cream retails in stores for 60 cents a quart.

"In my opinion one of the principal uses of the home freezer should and can be in the storage of the large quantities of ice cream. It is also an excellent food for children—better than most of the other kind of desserts that are fed them."

What about the cost factor? Won't that be a point of resistance in selling the home freezer?

"We have a story of savings that can be convincing, and we will place more and more emphasis on it as we get down into the lower income brackets," said Mr. Hanson.

"However, it's my guess that for a while, at least, the vast majority of sales will be to the upper and middle income groups, and these sales will be made chiefly on the basis of better living, better eating, and convenience and saving of shopping time, and the like."

There is one factor in original costs—especially to those who are equipping a new home or buying home appliances for the first time—that may be quite important, Mr. Hanson believes. That is his belief that a family owning a home freezer can get along with a much smaller household electric refrigerator than if they didn't have the freezer.

"I've seen this work out with my own family," avers Mr. Hanson. "There are six of us—my wife and I, and four children. Home economists would say that this size family would call for an 8-cu. ft. refrigerator, at least. We find that we get along fine with a 4½-cu. ft. refrigerator, plus our Deepfreeze.

A SMALLER REFRIGERATOR?

"Outside of the milk and other bottled goods, what else is there to keep in a refrigerator if you have a home freezer? A scattering of other items—some fresh vegetables of the green variety, the butter that is used from day-to-day, and the like.

"The difference in price between a 4½-cu. ft. refrigerator and an 8-cu. ft. refrigerator is considerable. It will go a long way towards paying the original cost of the freezer cabinet."

How did Deepfreeze-Detroit get into the sale of frozen foods as well as cabinets—the "service" to the customer that may loom so important in the distribution of low temperature equipment for the home after the war?

"The economy of quantity purchase forced us into it," remarks Mr. Hanson. "A source of supply for large-sized packages of frozen foods was essential at that time. From the day the store opened, we supplied our customers with large-sized packages of various vegetables, fruits. and delicacies. This helped sell units.

"We tried to help our customers by advising them where to go for meats, and finally we decided that we might as well try the experiment of selling the meats ourselves.

MEATS CAME LATER

"Starting, as we had, with fruits and vegetables, which we obtained through frozen food distributors, we later made a deal with a nearby meat market whereby it would cut and wrap choice cuts for us, which were then frozen and sold by us. Later on, we added ready-cut, boxed and frozen steaks, chops, roasts, etc.

"The idea spread rapidly and soon we had a widespread delivery service, which we instituted after buying a refrigerated truck.

"This truck would make deliveries in a certain section of the city at the rate of about once a week, and the customers in these various sections would gauge their requirements and order accordingly.

"Orders were taken over the phone by Meda Randolph, our food counsellor. She was able to advise the customers and tell them about new items, specials, etc.

"The driver functioned something like the old-fashioned huckster, most all of his transactions being for cash.

HOW DEALER ENTERS PICTURE

"We did not make any delivery charge, but in order to get delivery the customer had to give us a minimum order of $5.

"Most of the users were exceptionally enthusiastic over this type of service, which we had to curtail primarily because of restrictions on delivery."

Deepfreeze-Detroit now sells frozen foods at its headquarters, keeping them in a battery of Deepfreeze units on the sales floor. While they no longer are able to supply meats, they have added many new items like soups and chicken-ala-king, and other ready-cooked items. They also have some specials like brook trout from Iceland and frozen Jones' sausage meats.

What are the plans of Deepfreeze-Detroit, Inc., for the postwar era, when they will be functioning as distributor for the Deepfreeze line in the Detroit area, and 33 other counties in the state of Michigan?

"We are naturally planning to appoint a considerable number of dealers to sell the units," declares Mr. Hanson. "Some will probably be of the type that will handle Deepfreeze products exclusively, but others will undoubtedly be in various forms of retail business.

"It is likely that many of the dealers will be appliance retailers. The appliance dealer has had experience in selling this kind of product, and furthermore, he generally has a service department or good service connections, and that is important to us."

MINIMUM ORDER $5

Will all of the dealers also sell frozen foods?

"It is very unlikely that all of the dealers will sell frozen foods as well as cabinets," Mr. Hanson explained. "In the Detroit metropolitan area, for example, we may have several dealers, but it's possible that we might do all the food distributing business from our own headquarters.

"It is also conceivable that out in the state we might appoint a dealer, who in turn might appoint two subdealers in a community—one to assist in the sale of the cabinets, and the other to sell frozen foods.

"In other words, our distributing setup will be very flexible—to suit the needs of the user and to fit in with the desires of the dealer."

FOOD-BUYING GROUP?

Is there any chance that Deepfreeze distributors across the country might band together in some kind of a food-buying organization?

"There is a possibility that distributors of Deepfreeze units who will also handle food products may join together in some kind of a buying organization," thinks Mr. Hanson.

"If the business gets to anything like the proportions we think it may, we will have to deal with the large meat packers and frozen food packers, and the bigger 'buying front' that can be presented, the better we should be able to do in our purchasing and thus pass on more economies to the users of Deepfreeze units."

Telling Sales Story at Logical Point of Contact

This is a picture of a demonstration which Deepfreeze-Detroit staged in a suburban Detroit food market prior to the war. The officials of the distributing firm believe that such specialty selling tactics, much like those used on ranges and refrigerators, will again be employed after the war.

Brass & Copper Sales Co. Expands Quarters

ST. LOUIS—Additional warehouse space measuring 36½ ft. by 63 ft. is being constructed by Brass & Copper Sales Co., jobber of air conditioning and refrigeration supplies here, reports Otto A. Friemel, secretary of the firm.

To be equipped with electric crane facilities, the new warehouse space will permit relocation of metal processing machinery and thus allow one building to be used only for refrigeration supplies.

Increased business and the need for carrying larger inventories of such controlled materials as copper, brass, aluminum, and zinc, necessitated the expansion, which has the approval of the War Production Board, Mr. Friemel said.

New Los Angeles Firm

LOS ANGELES—Myers Refrigeration Service is the firm name under which Roy Lee and Pearl Cecil Myers have published a certificate that they are conducting business at 5230 South Vermont Ave., Los Angeles, Calif.

THIS ADVERTISEMENT has recently appeared in the SATURDAY EVENING POST, TIME, NEWSWEEK, BUSINESS WEEK and FORTUNE. With minor revisions the "Egg" advertisement is also appearing in LOCKER OPERATOR, FOOD INDUSTRIES, and QUICK FROZEN FOODS . . . a strong message to these big waiting markets for commercial refrigeration.

ANOTHER CARRIER DEVELOPMENT
for building refrigeration business

The public's growing demand for frozen foods means increased business in commercial refrigeration as soon as civilian installations are allowed again. Getting ready for this happy time, Carrier's advertising program accelerates public interest in modern refrigeration—and also goes straight to the people . . . the ones who benefit by the refrigeration.

Carrier means business for you. Your selling job is made easier by Carrier advertising and Carrier prestige.

In every phase of air conditioning, including refrigeration, the acknowledged Carrier leadership is a valuable asset. When you sell Carrier equipment, you know you make a good customer—rarely do you have a complaint or flare-back to handle.

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AIR CONDITIONING • REFRIGERATION
DEHYDRATION

Fur Farms Offer Market For Rather Extensive Refrigeration Installations

By F. H. Mead, District Manager,
Electric Refrigeration and Air Conditioning Division, Servel, Inc.

During the past five or six years a new and somewhat different type of market for low temperature refrigeration equipment has been developing in at least two sections of the country, the northern area (Michigan, Minnesota, and Wisconsin), and the eastern part of New York state.

I refer to a group of "farmers" who raise fur bearing animals such as silver fox, mink, otter, etc. Obviously, these animals must eat. Their diet consists of certain cereals mixed with horse meat, and they also are fed fish of the rougher type such as carp.

Horse meat is generally obtained by the fur farmer through the purchase of worn out work horses, or others which have been injured and are no longer useful. Fish are obtained from the state conservation departments, and have been taken from rivers or lakes.

When the fur farmer buys these food items he must, of course, make provision for preserving them, and this is where commercial refrigeration enters into the picture.

HOW SYSTEM IS USED

The meat when ground is mixed with the cereals, and this food for the animals is then placed in pans or containers about 24 inches long, 12 inches wide, and 12 inches high. The container is then placed in a small 40° ante room until the initial heat is removed, after which it is placed in a freezer room which, like the ordinary locker room, is carried at a temperature of —10 to 0°.

The meat remains in the freezer storage until it is required for feeding purposes, at which time it is melted and fed to the fur bearing animals.

An installation of this kind may be made with a medium temperature condensing unit operating on the 40° ante room, and a low temperature unit on the freezer storage room.

It is possible also to operate the system with a single medium temperature unit of the proper capacity. In the latter case either a solenoid valve or a suction pressure regulating valve may be employed.

A check valve must be installed in the suction line of the low temperature evaporator to prevent the distillation of refrigerant from the warmer evaporator in the ante room during the idle periods.

WITH BLOWER COILS

It is customary to cool the ante room or 40° room through the use of a blower type wall or ceiling mounted coil. The freezer storage room may employe any one of three types of coils successfully.

Many freezer rooms use steel pipe coils. These will work successfully, but coils of this type require a large charge of refrigerant in the system and may trap a great deal of oil. With this type of lowside it may, therefore, be necessary to install an auxiliary liquid receiver and a highside oil separator.

USE OF PLATES POSSIBLE

Freezer plates are also widely used. While they do not trap such a large amount of oil because the tubing is smaller, an oil separator is still a desirable adjunct to the system especially on "headered" coils. The freezer plates will also require a smaller auxiliary liquid receiver.

The third type of lowside for the freezer room is the blower type blast freezer. This type is usually equipped with either a water or strip heater defrosting arrangement. Less refrigerant charge is required in the system and will trap less oil. This blast type freezer lowside definitely necessitates daily defrosting through water or other means provided by the manufacturer in order to insure maximum operating efficiency.

It will be found that many of the fur farm installations will involve 2-hp. air-cooled condensing units. As for the storage facilities, many fur farmers have purchased condemned refrigerator cars from railroads and reinsulated them with the equivalent of 6-inch sheet cork in the freezer section and 4-inch sheet cork in the ante room section. These old cars can generally be bought from $35 to $50.

LIST OF PROSPECTS ARE AVAILABLE

In order to sell equipment of this type, we must first bear in mind that if direct personal solicitation is to be employed the locating of prospects by this method will prove expensive because fur farms are located beyond the city limits.

Most successful firms supplying this field have found that plenty of prospects can be secured by direct mail. They obtain from their state conservation department the names of fur farmers in their state, and compose a good form letter which is mailed with a return card to encourage replies. The response to this type of solicitation has proved inexpensive and gratifying.

Distributors and dealers selling this type of commercial refrigeration equipment have had little trouble securing priorities. This appears to be a growing market which can be solicited now, and will be a most promising outlet for postwar security.

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--FROM THE VAST, PENT-UP BUYING POWER OF THE FOOD INDUSTRY

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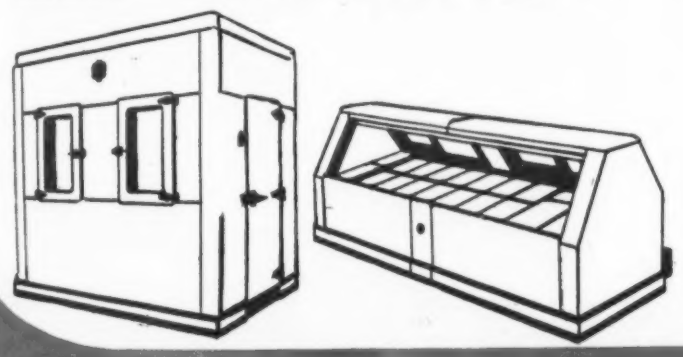


ED FRIEDRICH
SALES CORP.
SAN ANTONIO, TEXAS
Dept. ACR 1

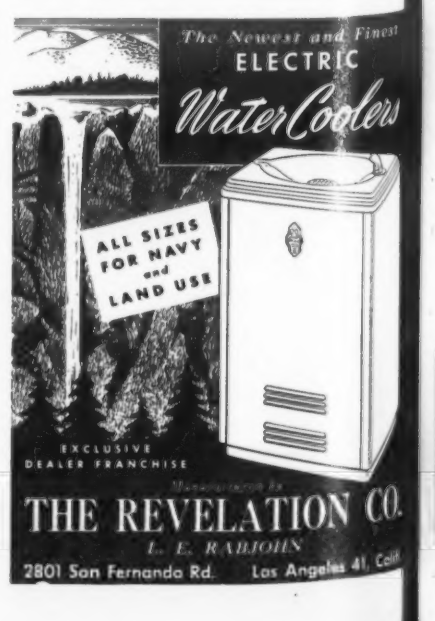
Penn Switch Granted Authorizations For Building Addition

GOSHEN, Ind. — To relieve the present congestion and inadequate facilities for workers at the Penn Electric Switch Co.'s plant here, the War Production Board has authorized the construction of a two-story addition to the present office building. This is the fourth building expansion of the firm since its move to Goshen from Des Moines, Iowa, in 1937.

The new addition will measure 42 ft. wide by 74 ft. long and will conform to the present building's architectural style. Construction is scheduled to start the middle of September and should be finished in two to three months. When completed, the new quarters will house on the first floor the entire engineering department including test engineers, designers, and draftsmen. The new portion of the second floor will be occupied by the accounting, cost, and payroll departments.

First floor of the present office building will be devoted to the production department while the present second floor will house the sales and advertising departments.

Austin Engineering Co. of Chicago, who designed and constructed the original building, has been awarded the new contract. The three previous additions were made to the factory in 1941, 1942, and 1943.



Too Complicated,' Say Stores After Look at New Proposed Pricing Rules

Changes in OPA Regulation Aren't Needed And Would Cause Confusion, They Contend

NEW YORK CITY — Proposed draft (No. 8) of the long-awaited new general retail pricing regulation found little favor with retailers when the plan was presented to Retail Council of the Office of Price Administration at a three-day meeting here.

Retailers would prefer to continue under present regulations rather than change over to another set of rules now, but if OPA insists that pricing methods be revised, retailers want a much simpler plan than that suggested by OPA, it is reported.

OPA offered its plan as an approach toward simplification of price control by application of a marginal technique to percentage over cost. The plan embodies dual control, one calling for pricing charts showing the cost-retail price relationships, and the second control limiting the cumulative mark-up to that of the base period of 1943, plus a leeway of .5%. Stores with annual sales of less than $50,000 would be exempted.

HIT DUAL CONTROL SYSTEM

Retailers object to the dual control system, and point out that some department stores would probably not be able to put it into effect until next February, because the plan involves much record-keeping and stores are short of help.

The pricing-chart method should be the only control, retailers contend. They also ask elimination of the provision requiring filing of pricing charts with the OPA. Instead, say these retailers, pricing charts should be kept in the retailers' stores, subject to inspection by authorized government representatives at any time.

"Present retail price control formulas have been reasonably successful, despite the constant addition of new costs at primary levels," said a resolution adopted by the Retailers Council.

KNOW PRESENT RULES

"After two and one-half years' experience with present pricing methods, most retailers have come to understand these methods and are observing them." (Retailers said they thought it unwise to burden stores with a new pricing system at a time when the European war is nearing its end and more and more civilian items are beginning to appear on the market.)

"A new regulation will be difficult to understand and will result in confusion in OPA administration, in stores, and with the public. A tremendous amount of work will be required when all retailers are operating under a serious handicap of manpower shortage," declared the resolution.

Some of the suggestions in the proposed pricing draft are as follows:

The price chart is intended to reveal what the merchant's cost-retail relationships have been at the end of a selected month in 1944, and would be arrived at by listing the costs, from the lowest to the highest, which the retailer paid for goods in each group of merchandise on which he has followed the same marketing practice. The price or prices at which the merchant sold the goods during the year would be listed on the chart opposite each cost.

Cost relationships need not be listed for each item handled, for many items can be grouped if the merchant customarily used the same cost-retail relationships for the items in the group.

OPA's suggested procedure is to first add all the cost prices appearing on the schedule and add all retail prices appearing on the schedule. Then subtract the sum of the cost prices from the sum of the selling prices. Divide this difference by the sum of the cost prices, and the resultant percentage is the "average percentage markup" over cost for the price schedule.

If the retailer has records showing the number of items sold at each cost and each price during the past year he may use an alternate pricing method which is based on the selling price at which the largest number of these items were sold. The latter becomes the ceiling price.

ALTERNATE METHOD

But, "whenever the use of either of these methods would prevent you from selling fair traded goods at the price established by the manufacturer under fair trade contract, you may list that item separately in the schedule by brand name, indicating its cost and the manufacturer's fair graded price, and you may continue selling at the fair trade price if you have done so in the past," states the proposal.

"After your chart has been prepared you must check the accuracy of each retail cost relationship schedule in your chart by ascertaining the effect of re-pricing your current inventory of the item or of the group of items covered by each schedule at the maximum prices permitted by your pricing chart," states the suggested regulation.

"If re-pricing that inventory at the maximum prices permitted by your pricing chart would increase the total retail value of your inventory of any item or any group of items for which a separate schedule of cost-retail relationships appears on your chart, you must revise the chart so that re-computing maximum prices on the basis of your chart will not increase the retail value of your inventory of any such item or group of items."

Retailers over the $50,000 annual sales mark would be required to keep with a "maximum cumulative markup," which is defined as the store's average initial markup for the items it sells. This is based on the cumulative markup for the calendar year 1943 or the 1943 fiscal year.

In view of the various objections raised by retailers to the proposed pricing plan, OPA officials, headed by Byres H. Gitchell of OPA consumer goods price division, will review the suggested regulation, it was announced, but some people feel that the adverse opinions of the Retail Council may force dropping of this draft of the proposed regulation.

G-E Supply Names Galloway

NEW YORK CITY — James F. Galloway, who formerly was sales manager of the General Electric heating and air conditioning department's branch here, has been named manager of traffic appliance sales for General Electric Supply Corp. in this area.

Automatic Dishwasher At Low Price Planned For Postwar Thor Line

CHICAGO — A low-priced electric automatic dishwasher will be added to the Thor line after the war by Electric Household Utilities Corp., according to E. N. Hurley, chairman of the board.

Thor engineers who were developing an automatic clothes washer (also scheduled for the company's postwar line) virtually chanced upon a new principle for the dishwasher, declared Mr. Hurley. It will not be necessary to have this dishwasher built into the sink, and the unit will eliminate the need for wiping dishes, also, according to Mr. Hurley.

A new automatic model of the company's home ironer is also planned.

Kane Handles Admiral Line in Ohio Areas

CHICAGO—The Kane Co. has been appointed distributor for Admiral Radio and Home Appliances in the Columbus, Toledo, and Cleveland trading areas, it has been announced by H. J. Clippinger, vice president in charge of sales of the Admiral Corp.

Distribution will be handled separately from each of the three localities. Offices and warehouses will be maintained in Toledo, Columbus, Cleveland, and also in Akron.

NORMAL SUCTION PROCESS WATER COOLERS

8 to 25 gallon capacities.

Compact in design...can be mounted on floors, walls or ceilings.

Suitable for drinking water bubbler service, cafeteria or restaurant glass filler service.

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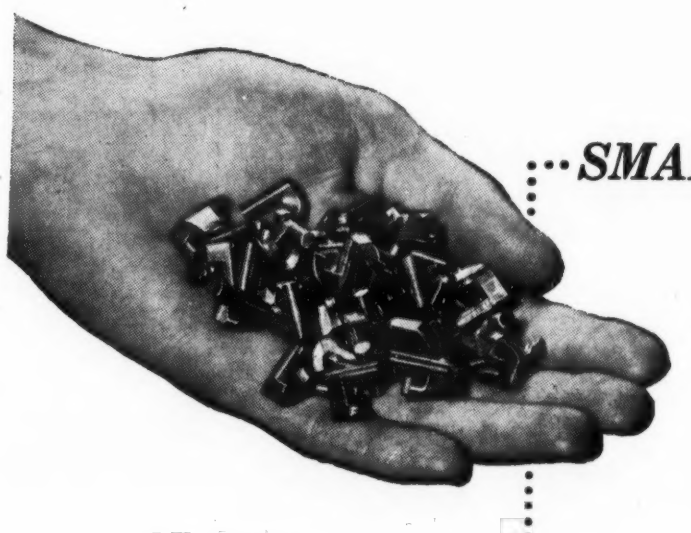

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★

Postwar Revolution? Yes, By the Ignored and Harassed Consumer

In Which a Sales Executive Tells Why Dealers Won't Be Able To Get By With Indifferent Selling

INDIANAPOLIS — There'll be a revoluton in America after the war.

A revolution by the buying public which is resentful of the offhand treatment received from many clerks, and the true specialty dealer and salesman will come out on top, predicts Richard A. Graver, vice president of Admiral Corp. in charge of the radio division, who recently addressed the Electrical League of Indianapolis.

"It's important to realize right now that the public is going to have to be sold again, after the war. Even today, with radios virtually unobtainable and millions of sets in disrepair, you can't make the public buy a set that doesn't meet its standards.

'CHUMPS' FOOLED 'EM

"Just the other day a big retailer in Chicago ran large advertisements on some new radios for sale at $122. They were $39 automobile radios put into large cabinets. Despite the advertisements in the leading Chicago newspapers, only 100 sets were sold. The public didn't bite at this attempt at easy selling, and it certainly won't bite at lackadaisical selling methods after the pinch on merchandise is eased," he declared.

"Remember, too, that the customer will want to be **comfortable** when he or she does his postwar shopping. I think that comfort and courtesy in shopping are among the most popular postwar aims of the American public. They're very tired of waiting in line to pay high prices for poor merchandise handed to them in inadequate warpping by surly and insulting salespeople.

"We're going to have a revolution in this country after the war, all right, but it will just be the turning of the poor browbeaten customer against all the vitriolic waiters, clerks, and salespersons who added to their injuries the insulting, 'Don't cha know there's a war on?'"

In his talk, "Viewing the Future of the Radio and Appliance Business," Mr. Graver warned his listeners not to expect the postwar miracles in appliances and radios immediately after the war.

MIRACLE STUFF OUT

"There has been a lot of publicity about miracle refrigerators—some that have revolving shelves, others made of new materials, and others which are long and narrow," said Mr. Graver. "All this sounds like wonderful dreams and some of it is possible in the future when engineers, designers, and developers have time to work on civilian merchandise. But you won't have it on your sales floor for quite a while. Here again, the first refrigerators off the lines will be very close cousins to the last ones. Of course, there will be improvements.

"The home freezer field is almost an outgrowth of the war, it's so new. Compared with the long drawn out build-up given television, these home freezers have had barely a whisper, yet the demand for them is tremendous. Housewives who now are working hard to can the produce of their gardens will be quick to recognize the advantages of the home freezer, which makes it easy to put away the fresh fruits and vegetables for winter use, and then eat them fresh, instead of canned. To a vitamin-conscious population, this opportunity to have vitamins in their natural, delicious state all year around will be a terrific sales force for your line of home freezers," declared Mr. Graver.

FREEZERS NEED BALLYHOO

"Yes, there's a big demand for home freezers. And they'll always be a good item to handle, and with a high unit of sale, like the refrigerator. It won't compete with the refrigerator for sales, because it fills an entirely different purpose. So now, just as you were once selling that second radio for every home, you'll soon be selling that second refrigerator for frosted food.

"As I mentioned, there hasn't been enough publicity so far on home freezers. What there has been has often confused the public by lumping them with food storage lockers, which are operated in stores on a rental basis. We have a very extensive educational job to do here, too. Even though neither we, nor you, have freezers to sell now, we should be very active in interesting the public in their advantages.

"You've seen what a great job of sales promotion can be done by building up demands—in radios, refrigerators, cigarettes, and many other fields. It's that kind of sales promotion campaign that will make home freezers a major source of your income in just a couple of years instead of 10 years from now.

"Another appliance on our new list is the electric kitchen range. Before the war, in places where electricity rates were not prohibitive, the electric range was gaining rapidly on the gas range. It'll continue to do so after the war. The modern kitchen will have an electric refrigerator, an electric home freezer, an electric dishwasher, an electric disposal unit—and an electric range. That's a peg to hang the sales approach on these things—the all-electric kitchen. It'll be a cleaner, healthier, pleasanter, and less care-requiring kitchen.

CHEER FOR DISHWASHER

"Electric dishwashers will be popular as soon as they have proved themselves to the public, have been given a publicity build-up and have come down to a price within general reach. Women who have been martyred to the drudgery of greasy plates and dishpan hands for centuries will greet the dishwasher like they would Clark Gable—as soon as they know what it can do.

"There is an important point that may be overlooked unless it is brought up specifically. In all that I have said about appliances, it might seem that the idea was to lump their sale together as a sort of unit, because they are all more or less related. Let me specifically state that we believe this is not the wise way to sell appliances on the postwar market. Each item will have to be regarded as a specialty, requiring special skills and knowledge on the part of the person doing the selling.

"This doesn't necessarily mean that you'll need separate salesmen for radios, for refrigerators, for freezers, for ranges, and so forth; but you must remember that the refrigerator, for instance, will continue, in almost all cases, to be sold by itself, and not as part of your line of six or seven items.

ONE APPLIANCE—ONE APPROACH

"Therefore, the approach to the sale will have to be individual; the salesman will have to think in terms of selling just that refrigerator; will have to know all about it, and will have to know what approaches are especially suited to selling it," Mr. Graver predicted.

"Don't try to make your organization a drug-store type of sales organization, handling a wide miscellany of items and giving them no individualistic handling. You'll have to compete with lots of others to make that sale. The wonderful days of wartime selling, when the customer did the work, will be over shortly after you have your first stock on hand. You'll have to make the sale again before you ring up the purchase price. So concentrate on specialty selling—it will pay.

"At the same time, you may want to consider the advantages of selling 'planned kitchens' and 'planned laundries.'

"With the tremendous boom in home building that is certain to come, there will be a demand for planned kitchens that will incorporate all the latest equipment into an attractive, practical, and efficient arrangement. It will help you to sell your ranges, refrigerators, and freezers if you work them into the customer's plans for that sort of kitchen. For this reason, you may find it profitable to add to your line all the other things that go into the layout of a kitchen—cabinets, sinks and so on.

ADVANCES IN RADIO

"I imagine there is another important question many of you hope can be answered. What sort of radios will the manufacturers produce, with **FM**, short-wave, automatic record changers, and television all bidding for inclusion with the regular receiver?

"Well, what I say on that subject, of course, expresses the way we at Admiral are viewing the matter. I believe that there are certain basic principles to be kept constantly in mind—radio's popularity is due primarily to the entertainment and convenience it provides the owner, not to novelty or gadgetry. The regular broadcast band of the home receiver is still the mainstay of this industry—there's no question about it.

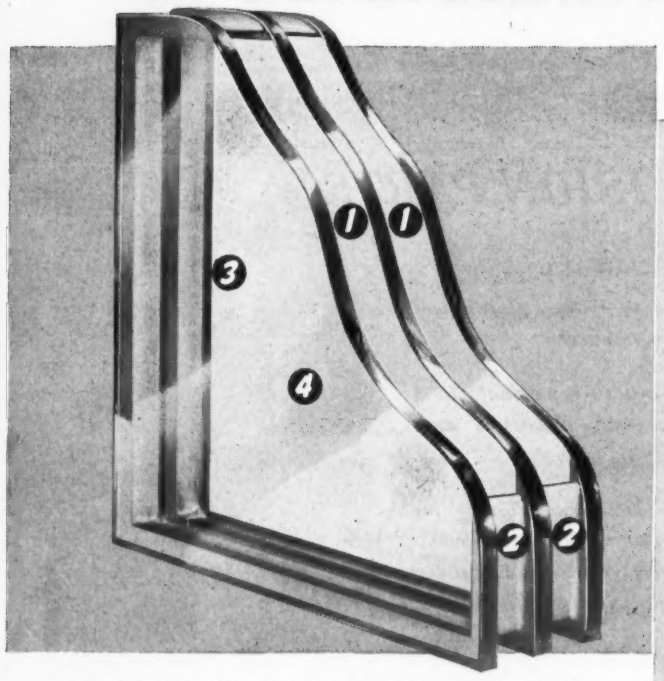
"**FM**, now perfected, is a refinement of that feature of radio, not really an addition. Although at present there are only 49 **FM** stations in operation, capable of reaching 50,000,000 people, now that it is perfected, expansion will come fast, and it won't be long before **FM** reception will achieve new heights in radio reception.

"The same things can't be said—yet—about television, as we believe it is still in the developmental stage. There is not enough attractive broadcasting on the band yet to create mass interest, and not yet provide what it aims to provide, visual and auditory entertainment, both free from imperfections that interfere with enjoyment.

"We come now to the automatic record changers; and I don't have to expand on the tremendous advances made in the phonograph field during the past few years. It was the radio which originally stifled the phonograph business; but it was the radio-phonograph combination together

(Concluded on Page 15, Column 1)

NOT
IT IS NECESSARY TO *Sacrifice Vision*
IN REFRIGERATION DESIGN!



Figures indicate these important Thermopane features: (1) *Insulating Air Space.* (2) *Patented Bondermetic Seal.* (3) *Clear Vision through glass.* (4) *Only two surfaces to clean.*

Thermopane
NEW INSULATING GLASS UNIT
PATENTED BY LIBBEY·OWENS·FORD
PROVIDES *BOTH*
CLEAR VISION AND
INSULATION FOR REFRIGERATION

Since modern Refrigeration began, designers and manufacturers have chiefly made use of opaque materials, because ordinary glass could not be successfully used to solve their refrigeration problems.

Today this picture has changed . . . and glass is usable as an *insulating* factor in refrigeration—particularly where goods must be displayed for sale and display. Libbey·Owens·Ford's THERMOPANE—the multiple glass unit that provides BOTH insulation and clear vision—is responsible for this new trend toward *Visible Refrigerated Products.*

THERMOPANE adaptability to the refrigeration industry is made possible by its unique construction—the bonding of metal-to-glass. Consider these advantages of THERMOPANE in your refrigerated products: (1) *Insulating Air Space.* The layer of air inside the Thermopane units is scientifically cleaned, dried and hermetically-sealed in at the factory and gives Thermopane its high insulating efficiency. (2) *Bondermetic Seal.* This patented, weatherproof, metal-to-glass seal bonds the panes of glass into one unit to prevent dirt and moisture from entering the air space. (3) *Clear Vision.* The dry air is sealed in with the patented bond to prevent frost or condensation from forming on the inner surfaces of the panes of glass. (4) *Only Two Surfaces to Clean.* The glass surfaces inside a unit are specially cleaned at the factory . . . and stay clean!

In your postwar refrigeration plans be sure to consider the advantages of THERMOPANE. Complete information from Libbey·Owens·Ford Glass Company, 6094 Nicholas Building, Toledo 3, Ohio.

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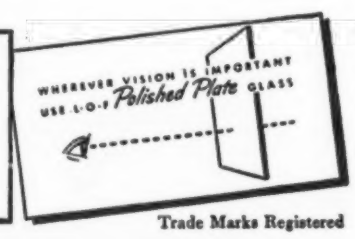
a Great Name in GLASS



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Refrigeration today is performing a vital service by guarding and preserving for future use, priceless food which might otherwise be wasted. Write for literature.

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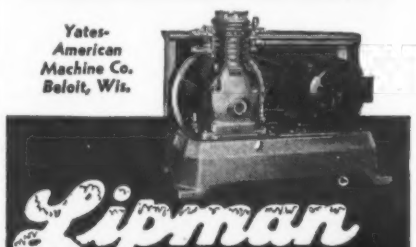


Kipman
AUTOMATIC REFRIGERATION

Commercial and Domestic
REFRIGERATOR HARDWARE

NATIONAL LOCK COMPANY
ROCKFORD, ILLINOIS

Graver Outlines Product & Merchandising Outlook In Period Right After the War

(Concluded from Page 14, Column 5)

with other elements, that has made the record business boom beyond any of its previous dreams.

"In spite of the fact that there have been no new discs made recently because of the musicians' union's ban and the shortage of materials, records are selling at unheard of rates. And this is only the beginning. Even at the peak period, approximately 10% of American homes had automatic record changers," he pointed out.

"We have not yet hit the boom in the phonograph-combination part of the radio business. It will be tremendous for years after the war. After all, it makes it possible for everyone to have his favorite music exactly when he wants it, and under the conditions he prefers; and there's enough of the independent individualist in every American to make him want to have the full say once in a while about what he listens to. So we expect a very large demand for automatic record changers after the war—both in record players and in radio-phonograph combinations. I say **automatic** record changers because I think convenience will be demanded by the public.

"Television will not be a real mass product for some time after reconversion. There are too few stations and the sending range is too short to serve more than a small segment of the American population. It will be several years before the broadcasting facilities, whether in black-and-white or in color, are extensive enough to make every radio owner a prospect for television.

TELEVISION GRADUALLY?

"That does not mean that we will ignore it. Of course we won't—Admiral will have television sets in its line for the market that exists and which will gradually expand. But it **will** be a gradual expansion, and it's a mistake to think of it in terms of large volume sales right away.

"Build your profit volume on radio-phonograph combinations now, and start right away to sell your customers off the notion that they should wait, before buying an expensive set, for a perfected television reception. They must be told that the kind of television they want won't be available for several years—until they're ready to buy their next high-priced set!

"Also, it is a mistake to think of television as a competitor of radio. First of all, television reproductions are designed to be accompanied by radio—it's a visual-auditory reaction. Secondly, television demands constant attention from the audience, whereas radio is relaxing because all it requires is the leisurely application of the body to the soft recesses of a chair. You wouldn't use a television receiver all day, as you now use a radio, any more than you'd spend a full day in the movies. It may be pleasant to think about the possibilities in television, but it'll be some time before you'll reach big demands," said Mr. Graver.

SUMMARIZING A VIEWPOINT

"To summarize the picture for radios, let me reiterate these points:

"1. The radio industry is fortunate. It will be among the easiest to reconvert, and we can be in production of civilian sets in a few days, providing materials are available.

"2. The first sets may have to conform to WPB and OPA requirements. And they'll be very similar to the last prewar sets.

"3. **FM** will fit into the picture speedily, but not immediately. FM is a refinement of radio, not an appendage. It's a means to better radio reception.

"4. Don't count on television as a major factor in your sales plans for several years.

"5. There will be a big demand for automatic record changers—particularly in radio-phonograph combinations. Use this demand to build high unit sales, thereby building your profits.

"6. You'll have a full line of improved portables to help raise the volume of your sales.

"7. Be realistic about the kind of sets you'll have to sell in the immediate future, and help the public to understand why."

Burge Opens Pittsburgh Store

PITTSBURGH—George W. Burge has opened a retail establishment at 300 Warrington Ave., supplementing his shop at 203 Warrington.

Mr. Burge is selling parts, bottle coolers, air conditioning, ice boxes, and meat coolers.

Steenstrup Resigns as Chief Engineer of G-E Refrigeration

SCHENECTADY, N. Y.—Christian Steenstrup has resigned as engineer in charge of General Electric Co.'s refrigeration engineering division after 43 years of service with the company, and will serve for the present as consultant, announces J. M. Howell, manager of the Schenectady works.

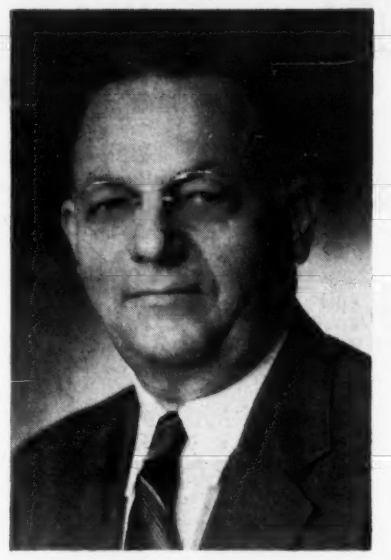
D. F. Newman succeeds Mr. Steenstrup, and L. W. Atchison has been appointed assistant engineer.

Mr. Steenstrup, who holds 113 patents on refrigerator manufacture and engineering, started with G-E in 1901 as a toolmaker. Some time after World War I, he was appointed supervisor of mechanical research at Schenectady, and is credited with producing a new hermetically sealed refrigerator unit for mass production in 1925. He was given a Modern Pioneer Award in 1940 by the National Association of Manufacturers.

Mr. Newman, new refrigeration engineer, has been with G-E since 1907, when he started as a mail clerk. After apprentice training he was placed in charge of special tool design, working under Mr. Steenstrup, and in 1927 was assigned to special refrigeration engineering. He has 27 patents.

A graduate of Montana State College, Mr. Atchison became a G-E student engineer in 1924. After several assignments, he joined the refrigeration division in 1928. He holds 31 refrigeration patents.

Promoted by General Electric



D. F. NEWMAN
A G-E veteran, he succeeds Chris Steenstrup as engineer in charge of the company's refrigeration engineering division.

L. W. ATCHISON
Who has been in the G-E refrigeration division since 1928, has been appointed assistant to Mr. Newman, now chief engineer.

Bendix Dealer Expands His Prospect List By Renting Use of Demonstrator in Store

HEADLAND, Ala.—Realizing the acute shortage of laundry facilities here, and desirous of promoting postwar sales of the Bendix Home Laundry, G. C. West, manager of West Appliance & Service Co., earlier this year offered the services of a Bendix demonstrator in his store to housewives who wanted to wash their clothes.

The offer was promptly taken up by scores of women, who having learned how to operate the machine, may be likely prospects for sales when the appliance becomes available. In addition, the firm receives nearly $8 daily through rentals.

Functioning somewhat like a beauty parlor, the firm accepts appointments over the telephone.

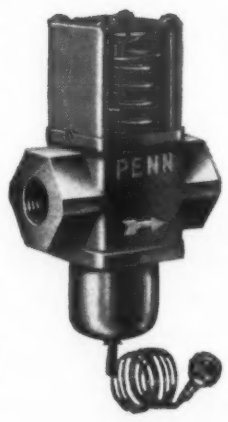
Water Threatens

to sabotage your valves

● Water harmless? Far from it! Water is the agent of Corrosion, Sedimentation and Rust—the Destructive Trio which can sabotage your water valves. They can, that is, unless *sliding parts* are protected.

That's why PENN designed the new Series 246 Water Regulator so that *no sliding parts touch the water*. This means no sticking seats, no rusty range springs, no abrasive deposits to shorten valve life.

Complete information on this new PENN Water Regulator is yours for the asking. Write *today* for Bulletin R-1986! *Penn Electric Switch Co., Goshen, Ind.* Export Division: 13 E. 40th Street, New York 16, U. S. A. In Canada: Powerlite Devices, Ltd., Toronto, Ont.



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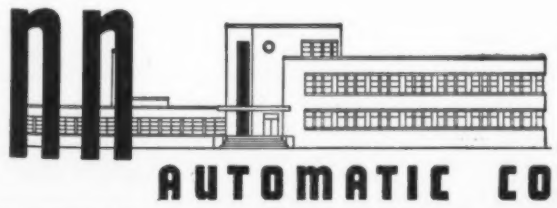

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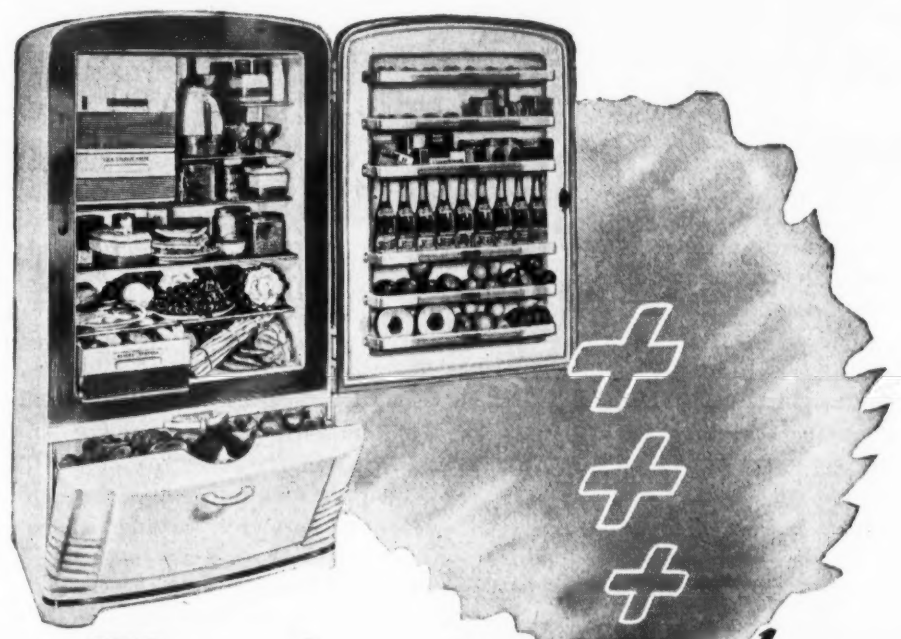

There's a *user+plus* in every Crosley product

IN THE CROSLEY refrigerator, it's the Shelvador* —a patented exclusive added convenience that a woman appreciates more and more every time she opens her refrigerator door.

Opening the Shelvador* is like opening two ordinary refrigerators at once.

For the shelves on the inside of the door double the amount of front-row food within easy reach. There at her finger tips a woman quickly finds just what she wants—without any juggling, or stretching, or handling of other foods. Time is saved. Door is closed sooner. Less cold air escapes. Electricity is saved. Food receives better protection.

Like every other Crosley product, the Shelvador* matches other refrigerators feature for feature. But, over and above quality of materials and precision of manufacture, in every Crosley product there is always *a plus*—a priceless extra which is a result of the Crosley policy of product development.

In all our postwar developments you will find this Crosley policy expressed in products of extra utility and excess value—a *user-plus* you can actually *see*, or *hear*, or *feel*.

*Reg. U. S. Pat. Off.

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SEPTEMBER 25, 1944
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They'll Do It Every Time

By Jimmy Hatlo

OKAY.. YOU'LL GET DELIVERY IN ABOUT A MONTH... JUST PUT YOUR JOHN ALOYSIUS HENRY ON THE DOTTED LINE TO MAKE THE DEAL LEGAL.. HERE, PAL.. I GOT A PEN... HERE!
OPEN THE DOOR, ERNIE! ONE FRESH SALESMAN COMING OUT ON HIS EAR.. BUT FAST...
THAT RUG IS THE OL' MAN'S PRIDE AN' JOY. HE DON'T EVEN LIKE ANYBODY TO WALK ON IT...
THAT JERK'S A WHOLE COURSE ON HOW NOT TO MAKE A SALE.. LESSON 1. ALWAYS SHAMPOO A CUSTOMER'S RUG WITH INK!
"AND KEEP YOUR HAT ON AND BLOW SMOKE IN THE PROSPECT'S FACE... I WONDER HOW HE GOT BY WHEN THINGS WERE HARD TO SELL?
ORDER BOOK
1-4
Copr. 1944, King Features Syndicate, Inc., World rights reserved.
WATCHING THE ROUGH AND READY SALESMAN PUT A BULL IN A CHINA SHOP TO SHAME. THEY'LL DO IT EVERY TIME—
THANX TO RALPH MUELLER, CLEVELAND, OHIO.

Air Conditioning For Homes

MOST members of the air conditioning industry are busy thinking of the huge unsaturated markets awaiting them in the commercial and industrial field. They are licking their chops over the thought that 90% of the department stores, 95% of the office buildings, 98% of the small stores and service establishments, 85% of the hotels, 80% of the hospitals, and 75% of the railroad passenger cars are still without air conditioning.

But how about the market in homes of the $10,000-and-up class? According to Edison Electric Institute figures, some 11,000 of these home installations had been made in all the years up to 1940, while half again as many were made in that year alone! (Later figures unavailable.) Who is there to say that the home market will be confined to portable units? And what of the millions of new homes to be built?

OWNERS OF BETTER HOMES MAY WANT CENTRAL SYSTEMS

If, through war experience, manufacturers have learned how to lower the cost of central system plants, a good market for such may be found in better class homes. Before the war, a cooling plant cost as much as 12% of the total value of the home, as contrasted with only 8% for the heating plant.

New, radically cheap home heating methods may make more cooling installations possible. So, too, may reversed cycle refrigeration developments. If equipment is developed directly for this market, standardized in its application, and made reasonable in price (say, 10% of the value of the home for combined heating and cooling), the industry will be all set to invade the field of private homes—a market so huge and lush it staggers the imagination.

Knowing that such equipment is being studied and developed, we might hazard a prediction:

Engineers *will* design unit air conditioners of flexible capacity. If air conditioning is ever to realize the roseate future so often pictured for it, if it is to become a major industry instead of a major disappointment, it will have to outgrow the contracting stage.

The factors of mass production and specialty selling must become vastly more important in the scheme of things, just as the factors of union labor (at inflated building-trades union labor prices) and wasteful on-the-spot estimating must become much, much less important.

COST OF AIR CONDITIONING MUST BE REDUCED

These developments are necessary to bring prices down to a reasonable level, a level which will not cause the prospect to throw up his hands in resignation. They are also necessary if the business is to become profitable for both manufacturer and distributor.

They are further necessary if standard prices are to be established and *advertised*—which will do more to eliminate confusion and distrust in the mind of the buyer than nearly any other move which could be made—and which will also make it possible for the distributor to back the product with the education, promotion, and salesmanship which it needs so badly.

In the case of the small window-type unit, the industry is on the right track. This type of unit, however, is quite limited in its application. For anything larger than a bedroom or a small office, contracting seems to enter the picture—even if the bigger 3 and 5-ton units are used. Why? Because rooms vary in cubic content, in occupancy, in sun load, and in many other variable factors.

"Air conditioning isn't like household refrigeration," the experts say. "You can turn out household refrigerators on an assembly line, because they're all alike, and all cool the same-sized space. But air conditioning is different."

AUTOS MEET ALL CONDITIONS; AIR COOLERS SHOULD, TOO

Somehow, we don't believe a man like Henry Ford or C. F. Kettering would be much impressed by that argument. An automobile is not designed to travel only at one speed on a smooth concrete highway. Good ones will move along evenly at four miles per hour or sprint up past a hundred. They will negotiate loose gravel, shallow streams, tough hills, rolling meadows, and Sunday traffic.

Often a tourist doesn't know too well what conditions his car will be forced to meet when he starts out on a long trip. But automotive engineers have foreseen all such conditions, and have turned out a product which will be adequate for practically any situation into which it may be steered.

Or, you can consider the radio. It can be tuned down to a mere whisper which even the old lady in the apartment up above can't hear, or it can be opened up enough to send an assembly hall full of high school jitterbugs into a frenzy of jive.

An air conditioning unit with flexible volume, one which can be "tuned" to fit different types of rooms and conditions, and *in particular, to fit different human wants and reactions* (for the temperature and humidity which make one man comfortable may drive another man out) should not be beyond the bounds of engineering ingenuity.

It's a cinch that air conditioning is hungry for more engineering. It's a field, an opportunity, that no refrigeration engineer should overlook.

10 DONT'S FOR SALESMEN SUGGESTED BY CARRIER

In this connection, it may be interesting to note a set of "don'ts" suggested by Dr. Willis Carrier:

1. "Don't make rash promises about miraculous 'cures' for various ailments through air conditioning. Air conditioning may help to alleviate suffering of hay fever victims, for instance, but will not cure them.

2. "Don't sell inadequate equipment just to make the sale. A room cooler will not condition a large store.

3. "Don't allow people to 'show off' their air conditioning systems by running them '40° cooler than outside.'

4. "Don't take anything for granted in figuring or installing a system. Air conditioning is an exact, mathematical science and should be treated as such.

5. "Don't stop trying to cut costs where it can be done legitimately and without affecting the efficiency of the system. Hundreds of subsequent installations may depend upon it.

6. "Don't cease looking for new outlets and markets for air conditioning. Twenty years ago we would never have dreamed of installing equipment in the deepest gold mine in South Africa.

7. "Don't place outlets so breezes keep the boss cool and give his secretary a 'pain in the neck.' One person, conducting a 'one-man campaign against air conditioning,' can do more harm than 10 satisfied customers can do good.

SELL AIR CONDITIONING FOR WINTER USE, ALSO

8. "Don't fail to sell air conditioning for winter use as well as summer. More and more people are recognizing its year around value.

9. "Don't 'pinch pennies' when installing equipment and ductwork. You'll save your client money in the long run through lower operating cost and satisfaction.

10. "Don't take anything for granted about the public's knowledge of air conditioning. Educate the general public, wherever possible, to the advantages of true air conditioning. Progress in development of the industry can be traced to the public's insistence on equipment which performs the full functions of air conditioning."

This seems like sound advice, in view of lessons the air conditioning business has learned at great cost. Most of the industry's grief has been of its own making; but now that "warning" signs have been erected over common pitfalls, less grief and more profits should be expected.

LETTERS

'INSIDE DOPE' IS THE 'BEST DOPE I'VE READ'

Aug. 15, 1944

Durez Plastics & Chemicals, Inc.
North Tonawanda, New York

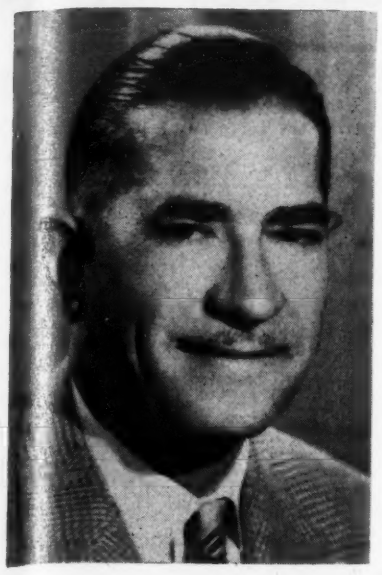
Editor:

Your "Inside Dope" is, I believe, the best dope I've read—and I do considerable reading. You have hit it squarely on the wage angle.

May enough of the voters be made to realize the truth you so ably set forth. Mr. Dewey's staff could use your editorial advantageously, in my opinion.

H. S. SPENCER

Crosley N.Y. Chief



E. A. BONNEVILLE

* * *

Bonneville Is Crosley Regional Manager

CINCINNATI — Appointment of E. A. Bonneville of New York as a regional manager for The Crosley Corp. has just been announced by J. H. Rasmussen, commercial manager, The Crosley Corp.

For the past 14 years Mr. Bonneville has been associated with the Times Appliance Co. During that time he had occupied various positions in the company, and at the time he left to join the Crosley Corp., he had been vice president in charge of the appliance dealer division.

'Megacycle Heat' Faster Cooking?

NEW YORK CITY — Electronic "megacycle heat" may be introduced after the war to speed up short-order cooking at lunch counters, restaurants, and hotels, predicted Vernon W. Sherman, manager of the industrial electronics division of the Federal Telephone & Radio Corp. at a conference of Associated Chain Drug Stores here recently.

This type of heating, because it penetrates to the center of the food being cooked, should speed up handling of customers at the drug store lunch counter by 25%, and possibly increase total income by 6%, said Mr. Sherman.

Operating on an ordinary electric circuit, such devices are as simple to handle as a conventional toaster, he declared.

Electronic Equipment Suppliers Need Rating To Sell Excess Stocks

WASHINGTON, D. C.—Wholesale dealers in electronic parts and equipment who desire to sell excess and idle stocks must first secure an AA-5 rating under Priorities Regulation 13, since these ratings are not automatically assigned, Radio and Radar officials pointed out last week.

Misinterpretations of Priority Regulation 13, as amended Aug. 18, have led some jobbers to undertake the sale of electronic components without securing the necessary AA-5 rating, officials said.

To the end that existing regulations be made clear, the following statement was made by WPB:

"List B of Priorities Regulation 13, as amended Aug. 18, 1944, lifted the prohibition against special sales of excess and idle stocks of the electronic components on List B to wholesale dealers. It was provided instead that such components could be sold to wholesale dealers on orders rated AA-5 or better.

"Regulation 13 and List B thereof do not assign to anyone the AA-5 or any other rating. The provision mentioned above means that wholesale dealers may buy excess and idle stocks of such components on their orders if rated AA-5 or better, but it does not give them the rating for that purpose. They may use only ratings which they have obtained otherwise and are legally entitled to apply under WPB regulations."

WPB Now Seeks Widespread Use Of Aluminum In Civilian Items

WASHINGTON, D. C. — Faced with a surplus of alminum over military needs and delayed demands from civilian producers, the War Production Board is urging widespread use of aluminum in all types of products, according to members of the newly formed Aluminum Industry Advisory Committee, which met here with WPB officials recently.

Shingles, cast radiators, venetian blinds, furniture, truck and trailer bodies, lawn mowers, corrugated sidings, box cars, baby carriages, garbage cans and pails, slide fasteners, metal moldings, and irrigation tubings are among the items which might be manufactured from aluminum, declare WPB officials.

Existing manpower controls, believes WPB, are probably responsible for the lack in increase in orders for aluminum to be used in civilian manufacture.

It was suggested by industry representatives that manufacturers be permitted to buy aluminum for inventory now. Purchases at the present time should shorten the reconversion period when manpower becomes available, they contend.

WPB officials suggested also that producers of aluminum products continue to segregate scrap on a voluntary basis, even after WPB orders making it mandatory are lifted.

Important war production can be halted through so simple an accident as the failure of a belt on air conditioning and refrigeration equipment. Little things can do a lot of harm.

Gilmer BELTS

That's why you'll find it wise to feature Gilmer Belts, and be set for replacement business and service jobs of this type. Rugged, long-lived, efficient Gilmers are good-will builders that bring you a profit. Order through your jobber . . . he's ready with Gilmers.

L. H. GILMER CO.
Tacony, Phila. 35, Pa.

Dependability doesn't happen...

IT'S *BUILT INTO* EVERY A-P VALVE

A-P MODEL 270
SOLENOID REFRIGERANT VALVE

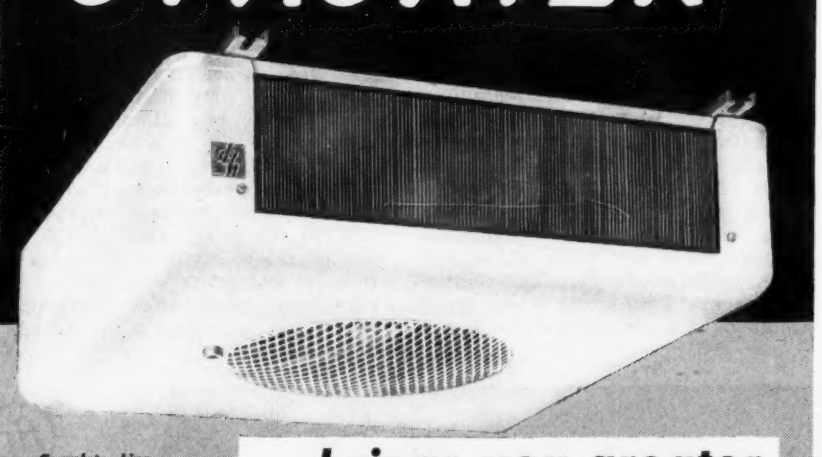
A new departure in solenoid valve construction, the A-P Model 270 pilot operated Solenoid offers many unusual benefits in refrigerant control. A new quieting feature, manual operating stem in case of current failure, easy inspection on the line, "over-powered" Wrap-Seal water and frost-proof coil, handy reversible mounting bracket, and other features make it ideal for refrigeration units in grocery stores, meat markets, florists, drug stores, and other applications requiring capacities up to 18.5 tons Freon. Capacity, Methyl or Sulphur, up to 46 tons. Precision designed, dependable, sturdy, it is built for long trouble-free service. Write for bulletin 403 and service data.

AUTOMATIC PRODUCTS COMPANY
2450 NORTH 32nd STREET MILWAUKEE 10, WISCONSIN

DEPENDABLE
REFRIGERANT VALVES

STOCKED AND SOLD BY PROGRESSIVE REFRIGERATION JOBBERS EVERYWHERE —
RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS

BEAUTIFUL
SPASAVER



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...brings you greater PRIDE and PROFIT

Finished in white deluxe enamel and streamlined for beauty, Spasaver is efficient, dependable and economical, too.

This modern horizontal cooler for cold rooms and refrigerators is manufactured in 10 sizes. All operate with minimum noise and require practically no servicing. It means more pride and satisfaction in service, more profit from any angle.

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THE FIRST AND ONLY FACTORY OF ITS KIND IN THE WEST WITH COMPLETE FACILITIES FOR ENGINEERING, DESIGNING, MANUFACTURING HEAT EXCHANGE EQUIPMENT

drayer-hanson INC
Since 1910 738 E. Pico St., Los Angeles 21, California

Landis Tool Co. Insures Accuracy of Its Grinding Tools in Conditioned Test Room

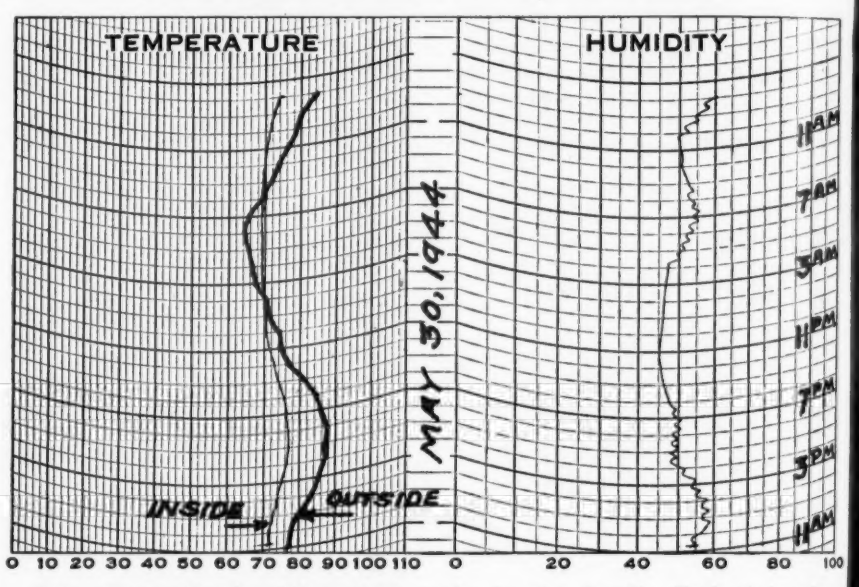
Employe Relations Helped by Cooled Meeting Room

WAYNESBORO, Pa. — Dust-free, closely controlled air plays an important part in the production of precision grinding machines at the Landis Tool Co. here. To insure extremely fine accurary of its products, the Landis company has air conditioned its research and test room, and, partly to promote employe relations, has also incorporated air conditioning in a spacious foremen's meeting room.

Founded in 1889, the firm specializes in the building of precision grinding machines. Its products are a favorite among builders of engines, other machine tools, and various kinds of accurately made equipment throughout this and many overseas countries. Landis engineers developed cam and crankshaft grinding, steel mill roll grinders with built-in cambering mechanism, hydraulically operated grinders, use of large-diameter grinding wheels, wheel spindle end drive through V-belts, and a special high production cam grinder for radial type airplane engine cams.

The Frick air conditioned research and test room at the Landis Tool Co. measures some 75 ft. in length and nearly 39 ft. in width, with a height of 13 ft. 4 in. Directly above this space is a foreman's meeting hall of about the same size. In addition to air conditioning, the meeting room is equipped with modernistic lighting, sound amplifiers, motion picture projection booth, hardwood floors, smoking stands, a coat check room, and other conveniences.

New research and test room of the Landis Tool Co. where air conditioning (note ducts where sidewalls meet ceiling) provides the type of air cleanliness and temperature control that are necessary in development and production of its precision grinding machines.



This temperature-humidity chart made in the Landis Tool Co.'s air conditioned room shows how inside temperature is increased 1° for each 3° rise in outside temperature, above 70°. Straight-line temperatures can be maintained when desired.

One end of the meeting hall is divided off to make a 20-ft. long committee room; this adjoins the projection room, and the motion picture equipment is arranged so that it can be turned and the pictures thrown on a screen in the small room.

APPARATUS IN TEST ROOM

The research room has walls of glass brick, above the 5-ft. level. Extending along each wall are conduits with numerous outlets for electric current, in the voltages used for both power and lighting work in the machine tool industry. A power crane extends the length of the room on one side. Ample lighting is provided from fluorescent fixtures, placed flush with the ceiling. Heavy work benches, a drinking water cooler, a lavatory, and fire protection apparatus complete the normal equipment of the room, but many pieces of special equipment are brought in from time to time.

This special equipment includes a physicist's research profilometer, an optical comparator, a complete line of electrical instruments for checking and testing, and several Sheffield gages, one of which measures to less than four millionths of an inch by electrical means.

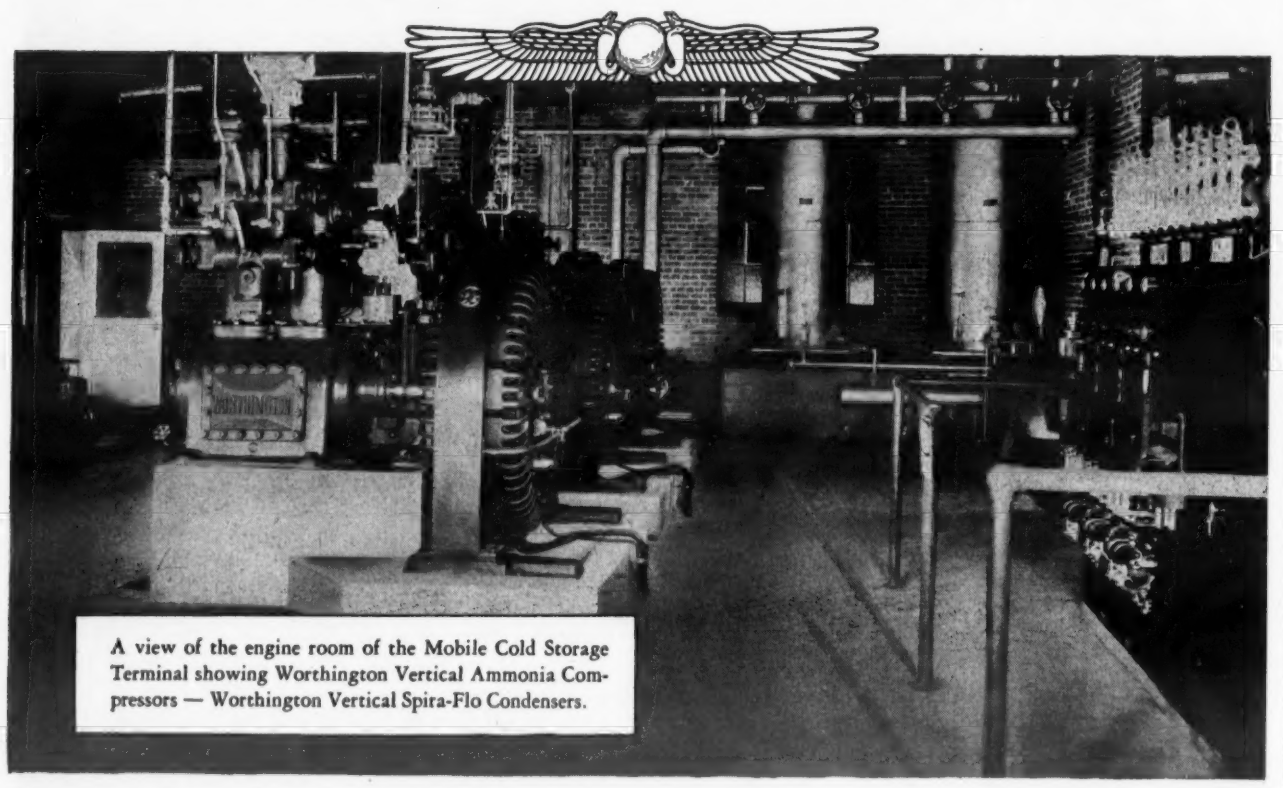
The air conditioning equipment was installed in a room in one corner of the ground floor. The system is arranged to give straight-line control of temperature, or, by closing a valve in the pneumatic system, will permit compensated control of temperature to meet changes in the weather outside. Should it become necessary, supplementary devices can be added to give very close regulation of humidity as well as temperature. Compensated temperature control is especially desired for making the meeting hall comfortable, or for doing assembly work in the downstaris room. Using compensated control, the temperature inside is increased 1° for every 3° of rise outside.

CONTROLLED, CLEAN AIR

The inside temperature can be set at say 70°, and if the temperature outside goes below this point, steam is admitted to the heating coil and the room is kept at a minimum of 70°, dry bulb. The relative humidity

(Concluded on Page 19, Column 1)

WE'LL TAKE THE HIGH LOADS...
AND WE'LL TAKE THE LOW LOADS



A view of the engine room of the Mobile Cold Storage Terminal showing Worthington Vertical Ammonia Compressors — Worthington Vertical Spira-Flo Condensers.

...and give Maximum Refrigeration Efficiency

The modern refrigerating system of the Mobile Cold Storage Terminal, operated by the Alabama State Docks Commission, is providing just the kind of service that its customers want. Many kinds of food products are stored in the new five-story plant — in temperatures described as — "20 below zero . . . or any temperature you require."

The three Worthington 9 in. x 9 in. Vertical Duplex Ammonia Compressors, shown above, can be operated in seven possible ways — each singly or in various combinations — a modern arrangement which enables the company to run *at high efficiency during high loads and low loads.*

The suction and discharge of all these compressors are Worthington Feather Valves*, well known for their high efficiency. The high pressure ammonia gas leaving the compressors passes into the two vertical Worthington Spira-Flo Condensers, equipped with patented Spira-Flo water distributors controlling the water fed to each vertical tube. Condensing water is taken from the river by means of a 4-inch horizontal split case Worthington Centrifugal Pump direct-connected to a 7½ h.p. motor.

This Mobile Cold Storage Terminal, like so many other highly efficient refrigerating systems, relies on *Worthington* for its vital parts. In fact, Worthington can supply *more* vital parts for air conditioning and refrigerating systems than any other manufacturer. For copy of bulletin, write *Worthington Pump and Machinery Corporation, Harrison, N. J.*

FIVE MORE REASONS WHY WORTHINGTON LEADS IN INDUSTRIAL REFRIGERATION

*Reg. U. S. Pat. Off.

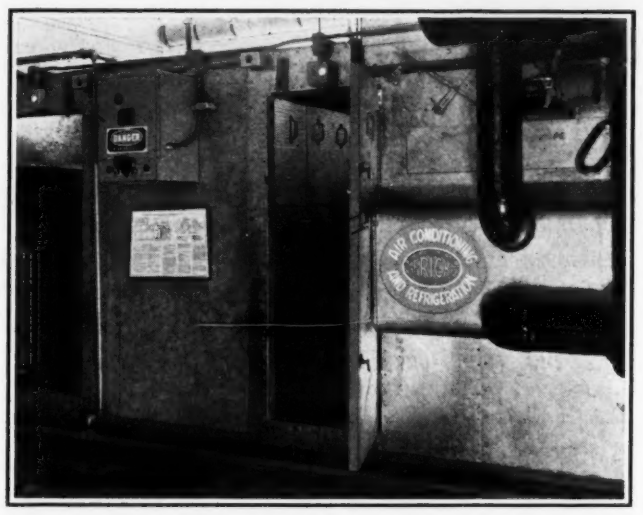
WORTHINGTON BEHIND THE NAME WORTHINGTON

AR 4-20

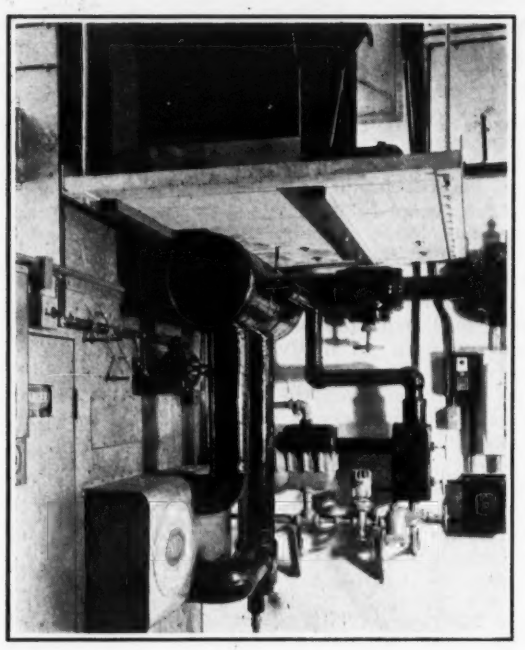
1. Horizontal compressors for ammonia, propane, butane
2. Angle engine compressors
3. Centrifugal compressors
4. Absorption refrigerating machines
5. Shell and tube refrigerating equipment

Electrimatic
AUTOMATIC CONTROL VALVES AND REGULATORS
2100 INDIANA AVENUE • CHICAGO 16, ILL.

Elements That Help Make Landis Tool Co.'s Air Conditioning System Complete



Through the doors into the air conditioning chamber may be seen the preheating coils and the Precipitron air cleaning units.



Arrangement of some of the elements of the system which helped to conserve space. The fan is on the overhead platform, while below it are the pneumatic damper control and ammonia connections.

* * *

Air Conditioning Serves Variety of Purposes In Precision Machine Plant

(Concluded from Page 18, Column 5)

is maintained between 45° and 60°, and averages about 50°, the space is very comfortable at all times, as this variation is within the comfort zone.

A feature of this installation is the use of a Westinghouse Precipitron air cleaner. This is so placed that both the fresh and recirculated air are carried through it. The doors giving access to the Precipitron equipment are fitted with long eyebolts, which must be unscrewed before the doors can be opened. Removing these bolts cuts off the high-tension current.

The conditioner operates on the automatic bypass system: 75% of the air is normally recirculated, and 25% is fresh air. The fresh air passes through an automatic damper and is warmed when necessary by a steam preheating coil.

It then mixes with a portion of the return air, passes through the Precipitron filter, and then through the cooling or reheating coils, before entering the fan. The galvanized cooling coil has finned pipes, and is 16 pipes wide by 8 rows deep; the finned steam coils are 16 pipes wide, but the preheat coil is only one row deep and the reheat coil two rows. All these coils, as well as the casing for the entire air conditioning unit, were built in the Frick shops.

The unit is insulated beyond the cooling coil. Carey moulded asbestos ducts, with ½-inch insulation for the first floor and 1-inch insulation above the ceiling of the second, are used. The air outlets are equipped with T. & B. Santrols.

The fan is of the Sirocco type and is driven by a 5-hp. motor through V-belts; it is located on a platform overhead, and delivers 8,000 c.f.m. Extra pulleys permit a change in fan speed. The air returns through a large grill, 7 ft. high, which can be seen at the right in the photograph of the test room. Automatically operated dampers direct the conditioned air to the meeting room upstairs, when use of this room creates a demand. The same temperatures are maintained on both floors.

Refrigeration is supplied by a 5 x 5 combined ammonia unit. Float valve control of the expansion type is combined with the use of a back-pressure valve and a small accumulator. Compressor motor speed is controlled primarily by the amount of air to be cooled and dehumidified. Pressurestats are added and used for correction of abnormal conditions.

A speed-changing pressurestat, operated by the suction, controls the 2-speed compressor motor so as to run the machine at high speed if the suction pressure is above 40 lb. gage, and at low speed (200 r.p.m.) below 40 lb. A low-pressure cut-out stops the machine at 5 lb. and permits it to start again, at slow speed, at 25 lb. suction.

The automatic dampers on the air conditioning equipment are operated by a Minneapolis-Honeywell pneumatic system, which is tied-in with M-H pneumatic-electric relays to the motor starters. Compressed air for this pneumatic system can be automatically gotten either from the lines connected with the power house, or from a small air compressor supplied for the purpose.

Quota Restrictions on Refrigeration Items Ended by Australia

SYDNEY, Australia — Quota restrictions have been dropped by the Australian government on imports from non-sterling countries (including the United States) of refrigerators and air conditioning equipment, reports the U. S. Department of Commerce.

Among the items now admissable quota-free are electric refrigerators, other types of refrigerators and parts, pressure controls for refrigerators, and air conditioning and refrigeration machinery.

No general relaxation of import restrictions is possible at this time, says the Australian Minister for Trade and Customs, but he added that this move is probably the first step toward such action.

McCord Changes Name; Okays Recapitalization

DETROIT — McCord Radiator & Mfg. Co. has announced a change in its name to McCord Corp., following approval at a stockholders' meeting.

Holders of more than 80% of each class of stock also approved the proposed plan of recapitalization involving the exchange on a voluntary basis of 1 1/10 shares of $2.50 dividend preferred stock and one share of common stock for each share of Class A stock now outstanding.

THE RECALIBRATOR

OUTSTANDING FEATURE OF AN OUTSTANDING GAUGE

Marsh has been building gauges for more than 75 years—gauges which today offer the utmost in accuracy and stamina. That "Recalibrator" is the finishing touch—your assurance that accuracy is locked in for keeps. Standard in all Marsh Dial Thermometers, available in all Marsh Gauges.

KEEPS GAUGES "on the beam" . . . .

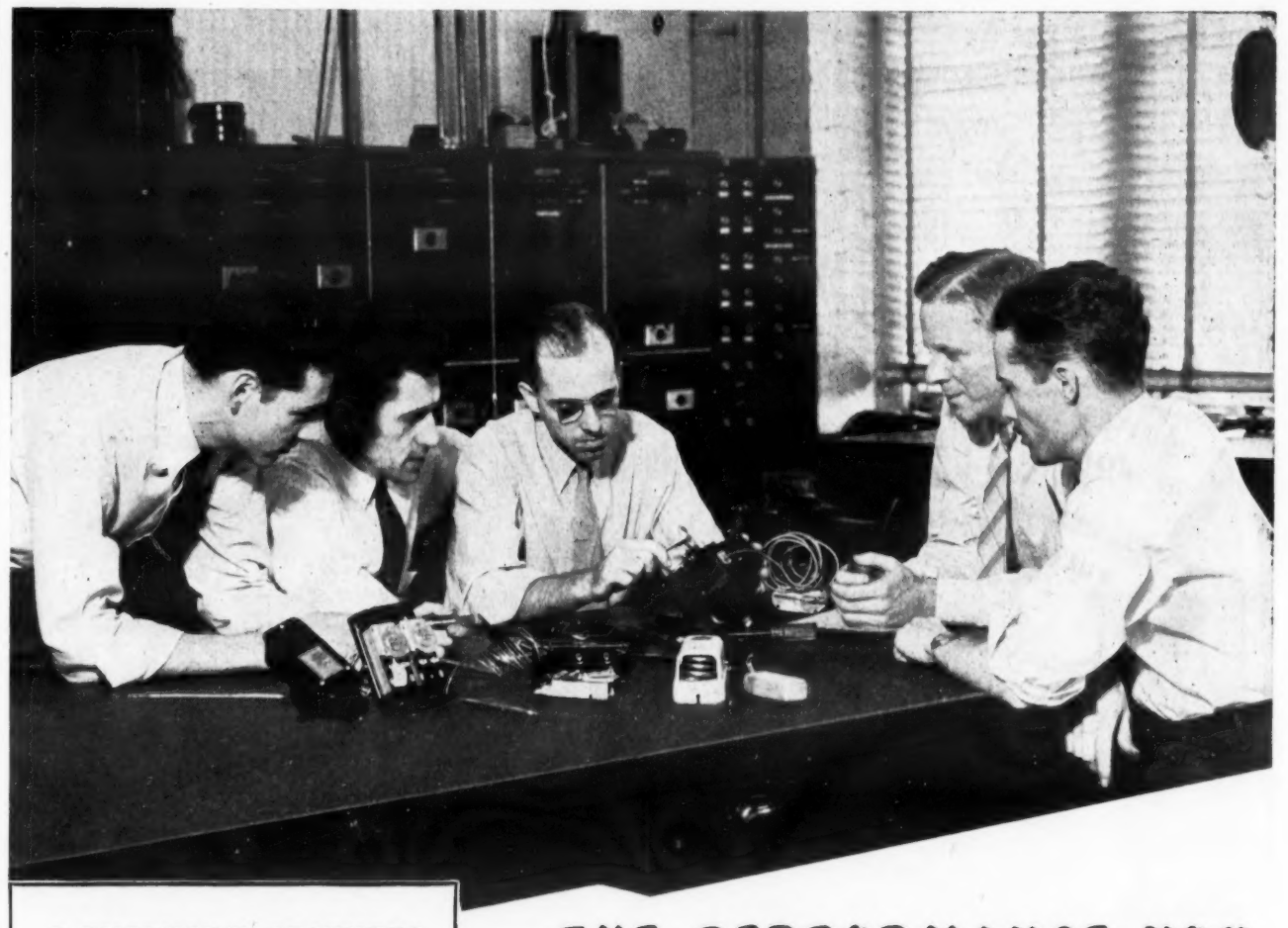
Gauges and Dial Thermometers that get off their course—that don't reveal true operating conditions—just don't fit in today's picture. Yet not even Marsh has ever been able to build a gauge that can't be knocked out of adjustment.

That's where the "Recalibrator" makes the big difference. It's the first completely satisfactory and convenient way to correct a gauge when inaccuracy develops.

The name tells how it differs from ordinary "adjustments". A twist of the "Recalibrator" screw actually recalibrates the instrument, by re-establishing proper relation between bourdon tube and movement—puts the gauge back "on the beam" throughout its entire range.

JAS. P. MARSH CORP., 2067 Southport Ave., Chicago 14, Ill.

MARSH
Refrigeration Instruments



8 EXCLUSIVE FEATURES OF WHITE-RODGERS HYDRAULIC-ACTION TEMPERATURE CONTROLS

1. May be mounted at any angle or position, above, below or on level with control point.
2. Hydraulic-Action Principle incorporating solid-liquid filled bulb and capillary provides expansion force comparable to that of a metal bar.
3. Diaphragm motion uniform per degree of temperature change.
4. Power of solid-liquid charge permits unusually sturdy switch constructon resulting in positive contact closure.
5. Heavier, longer-wearing parts are possible because of unlimited power.
6. Dials are evenly and accurately calibrated over their entire range because of straight-line expansion.
7. Controls with remote bulb and capillary are not sensitive to change in room temperature. Accuracy of control is not affected by temperature changes in surrounding area.
8. Not affected by atmospheric pressure. Works accurately at sea level or in the stratosphere without compensation or adjustment.

THE PERFORMANCE YOU BUY BEGINS HERE!

In our Engineering laboratory — that's where White-Rodgers accuracy begins. Trained technicians are constantly developing new equipment and methods of control.

Their experiments, plus the many tests they conduct, result in the dependable performance you expect and get from White-Rodgers Controls.

To give your product the best in automatic temperature or pressure controls specify White-Rodgers.

Fuel-Saving Starts With CONTROL

WHITE-RODGERS ELECTRIC CO.
1211J Cass Ave. St. Louis, Mo.

HYDRAULIC ACTION CONTROL

Controls for Heating • Refrigeration • Air-Conditioning

1,500 Food Locker Plants In Year Recommended By Task Committee

Task Committee Report on Frozen Food Locker Plants

Members of the Task Committee: M. G. Munce, Donald French, and P. H. Brennan.

Definition

A "Frozen Food Locker Plant" is a term applied to a modern low temperature food storage plant serving a community group of patrons (families and others). The services of such a plant includes food processing, preparation, and freezing. The principal components of a Frozen Food Locker Plant are as follows:

1. A chilling and aging room maintained at 36 to 38° F., where fresh killed meat is chilled and aged and other food products are chilled prior to processing and preparation for freezing.

2. A processing room where meats are cut to order, fowl is cleaned and dressed, and all types of meats, fruits, and vegetables are packaged, identified, etc., prior to freezing.

3. A quick-freezing cabinet or room through which all foods handled are routed for freezing. This cabinet or room, of which there are several types and designs, is used to produce a completely frozen product which is reduced to a temperature as low or lower than the locker room where the foods are subsequently stored. The design temperature of this room or cabinet is usually 10° or more lower than the locker storage room.

4. A locker room which may contain several hundred separate lockers for rental to individuals for food storage. Modern design usually requires this room to be held at a temperature of 0° F.

Locker storage plants vary in size from less than 100 lockers to large systems with as many as 2,000 or more individual lockers. The average plant, based on the recent WPB Task Committee study, contained 327 lockers.

The typical individual locker is of the drawer type, or door type. It is usually constructed of metal, equipped with a key lock, and provides approximately 6 cubic feet of storage space.

Function

Freezing and storage of foods is the principal function of all plants. Practically all kinds of foods suitable for freezing are to be found stored It is estimated that meat products, poultry products, game and fish constitute the greater percentage of foods stored, probably 70% to 80%. However, since the war began and as a result of food rationing and "Victory Garden" activity, there has been an increasing percentage of fruits and vegetables stored.

Some plants, usually the smaller ones, limit processing services to chilling, cutting, wrapping, and quick freezing; while some of the larger plants do many other types of food preparation including killing, dressing, aging, smoking, curing, packaging, etc. Limited cold storage service for nearby restaurants, markets, produce dealers, and others is often offered as a supplementary source of income.

In a report by the U.S.D.A. (No. 41—December, 1941) we find the following information regarding the percentage of plants which offer some of these special services:

Type of Service	% of Plants Offering
1. Slaughtering	53.3%
2. Smoking	36.3%
3. Making sausage	54.7%
4. Curing meats	39.5%
5. Dressing poultry	40.5%
6. Rendering lard	29.3%
7. Packaging of fruits and vegetables	32.7%
8. Scalding vegetables	12.6%
9. Other services	19.6%

The above figures were taken from 1,781 reports from individual plants.

Most families who patronize frozen food locker plants are producers of the food products which they bring in for storage, although many of them, in order to increase the variety of foods available, secure some items from neighbors or other producers. A few families who are not primary producers use the facilities of the plant to store foods secured from others. Practically all foods stored in the average plant are produced locally. The number of producers (in most cases farmers) has been estimated to average 70% to 80% of the total patronage of all plants (see U.S.D.A. reports and others).

Task committees from the commercial refrigeration industry advisory groups last month made available to WPB reports describing the kind of products produced by the various segments of the industry, the number of units produced in the past, and the number of units currently needed to provide essential replacements.

These reports give what is probably the most authentic picture ever presented of sales records of these products, the "life expectancy" of the items, and the replacement demand. With the permission of WPB, the NEWS published digests of some of the reports in the Sept. 11 issue, and offers more on this and the following pages in this issue.

Relation to War Effort

Preservation of foods in a locker plant by freezing, especially meats, eliminates a great deal of spoilage which often results from many other preservation methods.

Seasonal requirements for the preparation of farm killed meats are eliminated, making it possible for the family to enjoy fresh meat during the summer, as well as the winter months.

Victory gardeners who have the facilities of a frozen food locker plant at their disposal can increase the production of many kinds of food and store it in an economical manner.

There is a considerable saving of labor when foods are processed and preserved locally, as compared with the amount of time and labor needed to haul or ship them to distant processing points.

The frozen food locker plant can usually secure local help of a non-critical type without affecting the war effort, whereas the same food might be sent to a food processing center for handling where there may be a shortage of manpower.

According to information furnished to a Senate Committee, a large proportion of the food preserved by freezing in a locker plant would otherwise be preserved in metal cans made of steel and tin.

The transportation costs involved in moving foods to distant processing and storage plants and back again to the same community are eliminated if such food products are retained in the possession of the producer and stored for him in a frozen food locker plant.

Statistics

Frozen Food Locker Plants In the U. S.

Year	New Plants	Total Operating
1935	?	250
1936	200	450
1937	350	800
1938	600	1,400
1939	700	2,100
1940	800	2,900
1941	900	3,800
1942	800	4,600
1943	600	5,200
1944	275	5,475

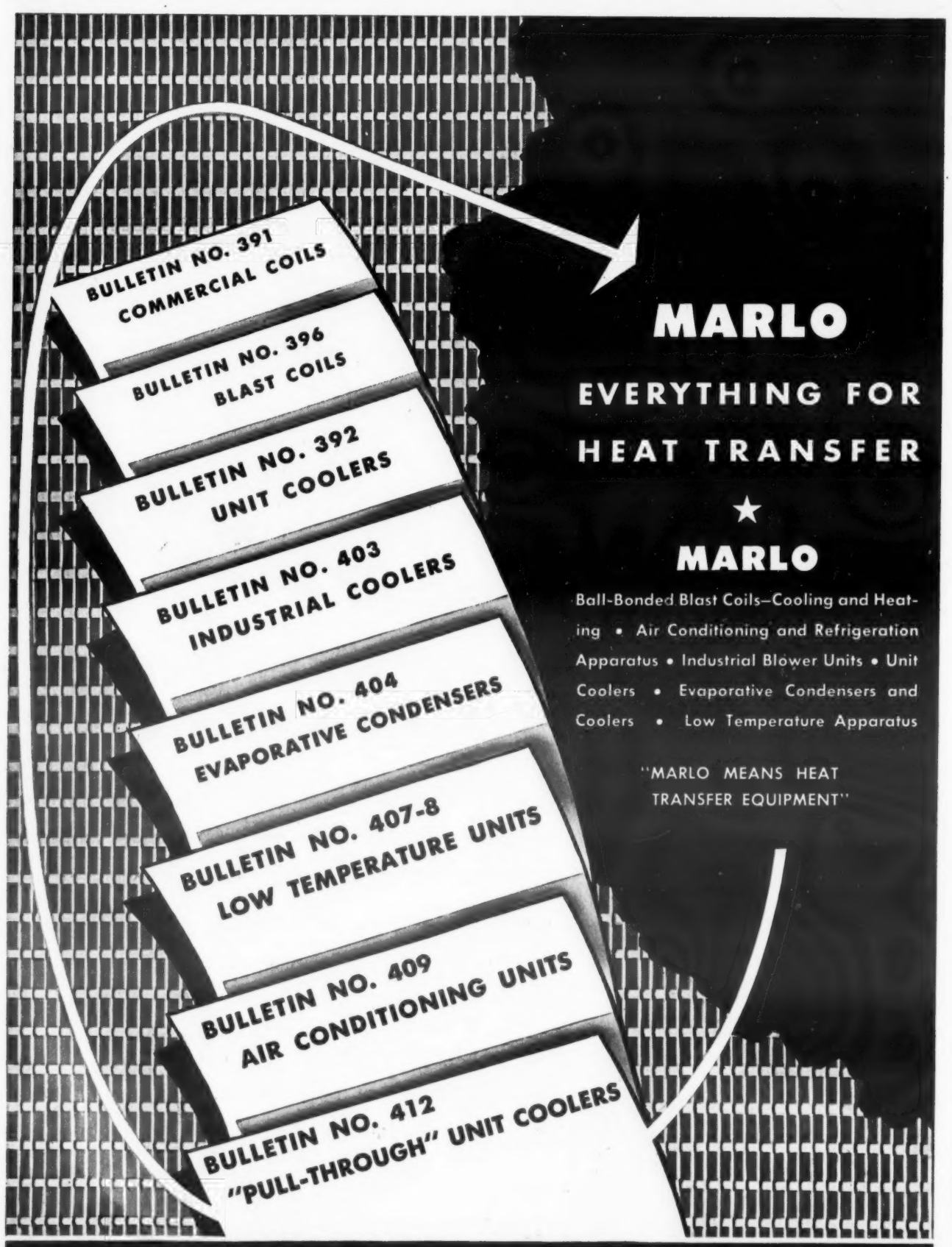
Average number of lockers per plant 327

Amount of food used from locker per year (family of four) ..... 688 lbs.

New Projects Needed

Taking into consideration the public interest, the needs of the industry, probable material, and facilities available, and the importance of the Frozen Food Locker Plant Industry in relation to the war effort, it has been suggested by members of the Task Committee that the program should call for 1,500 new plants and plant expansion projects for the year.

Value of refrigeration equipment for a typical frozen food locker plant of average size, and with chill and freeze room facilities, is approximately $3,420, according to the Task Committee report.



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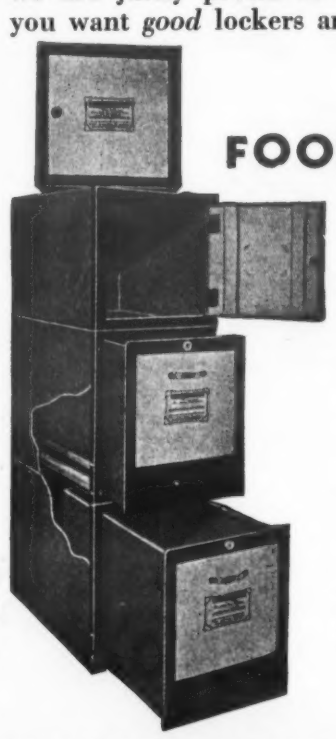

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Survey Reveals Potential Need For 300,000 Frozen Food Store Units

Task Committee Report on Commercial Frozen Food Storage and Dispensing Cabinets

Prepared for the War Production Board in July, 1944, by members of the task committee.

Description

Frozen food cabinets built for retail stores are manufactured in capacities ranging from 10 to 30 cu. ft. Their average size, and indeed the majority of units sold, are nearest to 20 cu. ft.

Such a cabinet consists of an inner metal tank and cooling coil packed in an insulating material, with an outer metal shell that also contains an automatically controlled compressor. Access doors may be either lift or swing. In general there is little eccentricity in design between manufacturers.

Function

Commercial frozen food cabinets are designed primarily to hold and to display frozen foods, and to make them physically accessible to shoppers. The non-rationing of frozen foods in general, together with the shortage of gasoline and tires, have made frozen foods an important item in most retail food stores.

Through the medium of these display and holding cabinets, the government is given use of greater sources of metal otherwise used in canning, and of manpower otherwise demanded by the more bulky and perishable transportation of fresh foods.

Wartime housewives are saved the wastage and spoilage, and the time involved, in the preparation of foods that must be carefully shopped for, painstakingly prepared and, in season, gone without entirely.

The food stores of a large chain organization were checked as to volume of business during the first three months of 1939 and the first three months of 1944. The average of monthly purchases added up to $188 in 1939, as contrasted with $446 in 1944. The sale of frozen cabinets, on the other hand, fell off substantially in 1942 and has been negligible since. Here are the figures since 1930, according to a table reproduced in the Committee's report:*

1930	200
1931	400
1932	500
1933	650
1934	800
1935	850
1936	900
1937	1,000
1938	3,000
1939	3,700
1940	4,000
1941	5,000
1942	3,000
Total	**24,000**

*Data furnished by BirdsEye-Snider, Inc., New York City.

The need for more frozen food cabinets has been implemented by three major factors: (1) the generally increased demand for frozen foods as a commodity, (2) by unprecedented population rises in the war-production cities, and (3) by grocers' greater storage demands because of less frequent food deliveries.

A survey of food market facilities in five such cities revealed the following conditions as to frozen food cabinet needs:

	Present Total	Additional Needed
Corpus Christi, Tex. ..	40	60
Mobile, Ala.	60	32
San Diego, Calif.	160	86
Washington, D. C.	60	20
Wichita, Kan.	51	21

The proportion was based upon San Diego's normal population of 200,000 with its normal number of frozen cabinets, which was 160, or one to every 1,268 people. A population increase of 110,000 people proportionally totaled 86 more cabinets needed.

The picture for the country as a whole is one of much less adequate supply. According to the 1940 census total of 400,000 food markets in the United States, only 25% of them have frozen food dispensing equipment. Here are the figures:

400,000 food markets to be served
38,000 frozen food cabinets in use
60,000 ice cream cabinets converted to this use
17,000 cabinets requested to be built
285,000 more cabinets needed if each store is to have one

The 17,000 cabinets requested were planned for in the ratio of 3,500 each to be built during the third and fourth quarters of 1944, and 5,000 each during the first and second quarters of 1945. The specified size requested was approximately 20 cu. ft. capacity.

At the time further producton was restricted, the following companies, as listed in the Committee's report, were known to have been manufacturing frozen food cabinets:

American Radiator & Std. Sanitary Corp., New York City.
C. Nelson Mfg. Co., St. Louis.
C. V. Hill & Co., Inc., Trenton, N. J.
Charles Q. Sherman Corp., New York City.
Grand Rapids Cabinet Co., Grand Rapids, Mich.
Hussmann-Ligonier Co., St. Louis.
Reol Co., Baltimore.
Schaefer, Inc., Minneapolis.
Stangard-Dickerson Corp., Newark, N. J.
Weber Showcase & Fixture Co., Los Angeles.

Other companies manufacturing in quantity possibly should be included, the report acknowledges, but their names were not available then. In the event that allotments are assigned to prewar manufacturers, the Committee adds, those companies deserving to qualify can easily be chosen from 1940 census reports.

Willis Stafford Joins Herman Goldberg Co.

WILLIS STAFFORD

* * *

CHICAGO — Willis Stafford, formerly assistant chief instructor at the Commercial Trades Institute Army refrigeration school in Bloomington, Ill., has joined the field organization of the Herman Goldberg Co., manufacturers' representative here.

Mr. Stafford was previously connected with the Detroit Lubricator Co. as a field engineer, and at one time operated his own refrigeration business in Aurora, Ill. He is chairman of the national publicity committee of the Refrigeration Service Engineers Society, and is a past national director.

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209 Jefferson Ave., Scranton, Pa. Phone 3-4000

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Dept. T1, Bloomington, Illinois

Water Cooler Group Says WPB Holds up Essential Replacements

Task Committee Report on Drinking Water Coolers

Prepared for the War Production Board in August, 1944, by A. R. Benua, C. M. Cordley, and F. H. Faust.

Description

Water coolers are self-contained devices through which water is cooled to a desired temperature and supplied for immediate disposal by suitable controls.

Water coolers are manufactured in both mechanical and non-mechanical types under separate classifications of "bottle coolers" and "pressure coolers." They are defined as follows:

A mechanical water cooler is one in which the water is cooled by means of an electric refrigeration unit. The complete assembly includes the refrigeration unit, a chamber in which the water is cooled and stored, suitable controls, and a sanitary faucet, bubbler or glass filler for dispensing the drinking water.

In non-mechanical types the cabinet contains a chamber for ice, a water-cooling storage receptacle or coil, and a dispensing outlet.

Bottle coolers are those in which the drinking water is delivered to the cooler from a glass bottle, usually of 5-gallon size, which is inverted on the cooler, and in which at least a portion of the water is cooled as required.

Pressure coolers can be used where piped water is safe, accessible, and the location reasonably permanent. Cooling in this type is more often mechanically controlled.

This report deals only with self-contained water coolers of the mechanical and non-mechanical types meeting Federal specifications and approved by various State Boards of Health. In all these models drinking water is cooled without contact with the refrigerant.

Function

The purpose of a water cooler is to furnish an adequate and accessible supply of pure, palatable drinking water. It is required (1) to cool the water to a desired temperature usually between 45° and 50° F., (2) to assure against contamination in the cooling and dispensing of its water, and (3) to be sufficiently portable for installation at the most accessible and convenient locations.

The importance of cool, palatable drinking water has been affirmed many times by medical authorities. A prime necessity of life, water comprises about 70% of the body's total weight. The Task Committee's report quotes several references giving detail to the above statement.

Among them is an analysis of the basic requirements of drinking water systems needed in industrial plants. These elements are listed:

1. The purity of the supply should be unquestionable.
2. The quantity supplied should amply meet the physiological needs of the workers.
3. The water should be palatable —that is, free from disagreeable odor, color, or taste.
4. The supply should be so distributed as to

a. insure proper temperature at the time of consumption,

b. be conveniently accessible at all times to the personnel of the establishment, and

c. preclude the transmission of disease from one person to another.

Statistical Data

Present distribution of water coolers:

1. Industrial	50%
2. Offices, stores public meeting places	30%
3. Restaurants and cafeterias	10%
4. Hospitals and institutions	5%
5. Miscellaneous	5%
Total	**100%**

Estimated total number now in use:

1. Mechanical	500,000
2. Non-mechanical	200,000
Total	**700,000**
Average age of both kinds:	10 years
Average age of those now in use:	7 years

Total number of over-age units now in use:

1. Mechanical	150,000
2. Non-mechanical	60,000
Total	**210,000**
Percentage of the whole	30%

Total annual production by all manufacturers, 1939-1941:*

Year	Mechanical	Non-Mechanical
1939	40,600	15,800
1940	50,000	20,593
1941	78,000	30,000
Total for 3 years	**168,600**	**66,393**

*From statistical reports of the U. S. Bureau of the Census for 1940.

Number becoming over-age each year:

Type	Total	In Essential Use
Mechanical	20,000	15,000
Non-mechanical	12,000	6,000
Total	**32,000**	**21,000**

Of the total number of water coolers that become over-age each year, 75% are in essential applications, a category including those in war plants, hospitals and institutions, and restaurants and cafeterias accommodating war workers.

Most of these can be replaced under the terms of War Production Board limitation orders. But others, such as those in stores, office buildings, places of public assembly, and general restaurants and cafeterias, cannot be replaced under present limitation orders.

It has been approximately three years since such water coolers could be replaced. On that basis, the estimated annual replacement needs for these installations will have mounted to three times those of essential users.

The demand for new installations is governed by two principal factors: 1. The growing recognition by both management and labor of the essential need for this equipment in factories where adequate facilities for drinking water have not been provided, and 2. the growing insistence by State and Federal health and labor departments on improved working conditions.

When materials and labor shall become available without restrictions, new installations may average 50,000 mechanical and 20,000 non-mechanical water coolers, over and above essential uses.

Minimum essential production is estimated at 35,000 mechanical and 14,000 non-mechanical units. Recommendation for the manufacture of the former number has been unanimously seconded by WPB's Water Cooler Industry Advisory Committee.

The summary of total requirements for both replacement and new installations thus can be tabled in these figures:

	Mechanical	Non-Mechanical
Essential Uses		
Replacement needs	15,000	6,000
New installations	20,000	8,000
Desirable Uses		
Replacement needs	15,000	6,000
New installations	30,000	12,000
Grand total	**80,000**	**32,000**

General Recommendations

The present WPB Order L-38 is generally inadequate, providing for mechanical pressure-type coolers for essential civilian needs in hospitals and industrial war plants, but making no provision for clerical workers in these essential places, or for replacements or new installations in other applications.

Recommendation: That immediate consideration be given to permit the sale of water coolers for the use of clerical workers in designated essential activities.

Mechanical pressure-type coolers now are restricted to sizes producing 5 gallons per hour, or less. In numerous installations where large groups of workers are to be served, or where high working temperatures prevail, one large-capacity unit can do the work now done with less economy by two or more small units.

The present size restrictions, moreover, work an unreasonable hardship on water-cooler manufacturers whose experience and manufacturing facilities have been geared to high-capacity coolers.

Recommendation: That the manufacture and sale of larger size pressure-type water coolers be authorized.

Mechanical bottle-type water coolers may not be manufactured at present. This has proved of unusual hardship in locations where the piped water supply is unavailable or unfit for drinking purposes.

Recommendation: That the production of one model of mechanical bottle-type cooler be permitted, with sales to be controlled under present L-38 provisions.

Nor are non-mechanical coolers now permitted. A considerable weight of evidence has pointed out the health hazards and hardship to workers, and to production, resulting from this inadequacy in the numerous locations where mechanical units are impractical or impossible to install.

Recommendation: That the manufacture be authorized of pressure-type ice coolers of 50 pounds minimum ice capacity, and the manufacture of one model bottle-type ice cooler of 25 pounds minimum ice capacity, with sales to be permitted under present L-38 restrictions.

Manufacturers

The names and addresses of companies known to have been engaged in the production of water coolers at the time further manufacture was restricted or prohibited are listed by the Committee as follows:

Allen Filter Co., 25 South & Claire Sts., Toledo, Ohio.

Carrier Corp., Syracuse, N. Y.

Century Brass Works, Inc., Belleville, Ill.

Copeland Refrigeration Corp., Sidney, Ohio.

Cordley & Hayes, New York City.

Day & Night Mfg. Co., Los Angeles.

Drayer & Hanson, Inc., Los Angeles.

Ebco Mfg. Co., Columbus, Ohio.

Fedders Mfg. Co., Buffalo, N. Y.

Filtrine Mfg. Co., Brooklyn, N. Y.

Frigidaire Div., General Motors Corp., Dayton, Ohio.

General Electric Co., Air Conditioning and Commercial Refrigeration Divs., Bloomfield, N. J.

Geuder, Paeschke & Frey (Ice), 324 N. 15th St., Milwaukee.

Giessel & Co., Henry, Chicago.

Grand Rapids Water Cooler Co., Grand Rapids, Mich.

Hires Co., Charles E., Philadelphia.

Nash-Kelvinator Corp., Detroit.

Norge Borg-Warner Corp., Detroit.

Progress Refrigerator Co., 737 S. 13th St., Louisville, Ky.

Puro Filter Corp. of America, New York City.

Revelation Co., 2801 San Fernando Rd., Los Angeles.

Sunroc Electric Water Cooler Co., Media, Pa.

Taylor Co., Halsey W., Warren, Ohio.

Temprite Products Corp., Niles, Mich.

Uniflow Mfg. Co., Erie, Pa.

Westinghouse Electric & Mfg. Co., Springfield, Mass.

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Whether your business requires $25,000, $500,000 or more, your needs will be met in short order, provided we can help you make money with reasonable safety to ourselves. That's our policy in a nutshell. It's that simple, that quick, that effective.

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Farm Freezer Committee Cites 5 Reasons For Production Now To Aid the Farmer

Task Committee Report on Farm Freezers

Prepared for the War Production Board in July, 1944, by Robert R. Jamison, J. E. Wilson, and D. Bierhaus.

Description

A farm freezer is a refrigerated, heavily insulated enclosure with a capacity of 15 or more cubic feet and with facilities for both sharp freezing (below 0° F.) and low-temperature storage (averaging 0° F.) of food on the farm.

Constructed of steel and other materials, farm freezers are refrigerated by means of cooling coils. The refrigerating units used usually are self-contained, but in the larger sizes they sometimes are remote, varying in this respect with the individual manufacturer's design.

Function

The method of food preservation made possible in farm freezers has enabled farmers to make fuller use of the food supplies they produce, and to extend the variety of foods they now can produce.

Through its use, it is possible for them (1) to save labor and time in preserving the food themselves; (2) to provide more nutritive and better meals in both winter and summer; (3) to save foods that otherwise are sometimes wasted; and (4) to save the time and expense of frequent trips to other sources of food supply.

The average size of farm freezers is 24 cu. ft. From 1,500 to 2,000 pounds of perishable foods can be frozen and stored from season to season in a box of this size.

A postcard survey of its 12,000 farm customers by Niagara Hudson, the New York Power & Light Corp. at Cobleskill, N. Y., showed 24% indicating their need for farm freezers. This return put the farm freezer far ahead of the other items desired, at the top of the list of those which would be bought, the farmers stated, as soon as possible.

A similar report was made to the Task Committee by the research director of a New York State farmers' cooperative exchange. In the course of handling a wide variety of goods and services for nearly a quarter of a million farm families, he said, he found more interest in the acquiring of home freezers and storage boxes than in any other single piece of equipment.

If the acutal experience of users of farm freezers and storage boxes were to be of any value in volume manufacturing and selling, the research director went on to say, then the early manufacture of these items should be recognized and begun now.

The farmer's need for them is not a future matter, but one of present wartime importance and of significance to the war effort, states a report to the Task Committee from the agricultural engineer of the Philadelphia Electric Co. at Coatesville, Pa.

He remarks having seen numerous instances where makeshift and homemade freezers had been put to work in farm homes and had saved overworked farmers and their wives and children long hours of work and time.

In such cases soups, puddings, dough for bread and biscuits, stews and many other unusual preparations that could be prepared only at infrequent intervals, were stored under refrigeration and served readily and quickly.

Relation to War Effort

The urgent need for farm freezers as a vital part of the war food program, presented to the War Food Administration early this year by the Farm Freezer Manufacturers Assn., was summarized by the Task Committee in its own report to WPB. Five fundamental points were given emphasis in detail:

1. The saving of food now being wasted. The annual farm slaughter of livestock for personal use has increased 25% since the war's beginning, rising from 12 million head to 15 million.

Spoilage is high, despite curing and other common home preservation methods, the report states. Excessive quantities are eaten merely to save wastage during the slaughtering season, and much is thrown away. During the rest of the year the farmers have to obtain their meat from the limited commercial meat supply.

In similar pattern, fruits and vegetables ripen within definite periods of their season, during which time limits they must be eaten, preserved, or wasted. The lack of easy processing equipment results in a percentage of waste averaging between 25% and 35% each year.

Preserving by freezing could reduce waste to a minimum in each of these instances, especially since, when the crop is limited or the slaughter divided into short spaced intervals, even small quantities are easily and conveniently frozen.

2. The increased production made possible of preservable essential foods. Here the limitations on production often imposed by market conditions or transportation facilities can be made much less inflexible because of storage conditions that do not jeopardize the desirability of the food itself.

The wide variety of foods that can be preserved under refrigeration extends this suspension of the time limitation even farther. Added to the more widely publicized items of fruits, vegetables, and meats are poultry, cream, eggs, butter, cooked foods, even bread.

3. The reduction of transportation problems. The matter of transporting his produce to market often is handled by outside organizations acting as middlemen or for the buyer, but the farmer like everyone else is faced with the problem of buying food for his own family.

Food supplies obtained from towns require trips averaging 12 miles, according to the FFMA's figures. Refrigeration storage, extending not only the time availability but also the variety of foods that can be produced with an eye toward future storage, conserves the limited supply of gasoline, tires, automobile life, and above all, the supply of time.

The elimination of only one such trip a week represents a saving of 624 miles a year, per farm freezer user. Multiplied by the total number of users, the figure mounts into the millions.

4. The increased food production made possible through time saved. This has become of national importance in light of the limited manpower now available in farming, universally recognized in its aspects of Victory Gardening and the call for farm help during the harvest time.

The greater remedy must lie in increasing the productivity of the remaining farmers and their families. More food can be planned, sown, cultivated, and harvested when again the uncertainties of market conditions, possible transportation facilities, and rock-bottom prices can be reduced to a minimum by the reassurance of adequate and excellent storage.

5. The elimination of wasteful livestock feeding. Meat and fowl reach a season of prime condition just as crops do, and slaughter at this time is most practical, in terms of flavor on the table or price on the market.

But when preservation methods are not feasible or not available, slaughter must be postponed. Added to the element of missing their prime condition is that of having to feed and care for them until such facilities do become available. The farm freezer contributes substantially here as well.

The total production of farm freezers during 1940, according to reports submitted to the U. S. Bureau of the Census under preliminary compilation of 17 manufacturers, was 905. By the time war came, the number had reached a figure estimated between 5,000 and 7,000. The figure does not include cabinets designed for other fields of refrigeration but later diverted to this use.

Five manufacturers are believed to have been making farm freezers on a national scale at the time production was restricted. The Task Committee's report lists them as follows:

Esco Cabinet Co., West Chester, Pa.
Quillon Bros., Indianapolis, Ind.
Emil Steinhorst & Sons, Inc., Utica, N. Y.
Victor Products Corp., Hagerstown, Md.
Wilson Cabinet Co., Smyrna, Del.

In addition to those companies were 12 others, it is the Committee's understanding, that reported some production during 1944.

Request 500 Now

The production of 500 farm freezers should be authorized immediately, the Task Committee recommends, to insure adequate safeguard against the interruption of basic food preservation between now and Jan. 1, 1945.

A production schedule of 200 units every three months should follow these, they believe, for the replacement of existing essential equipment.

As soon as men, materials, and component parts are released from war production, they conclude, a minimum of 30,000 farm freezers should be authorized annually for civilian consumption.

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- Made in series to fit the needs and pocketbook of all families, both urban and rural.

Built by Amana — backed by refrigeration engineering experience since the beginning of FROZEN FOOD LOCKERS. An outstanding home unit, with features that spell convenience, economy and efficiency in home freezing and storage of FROZEN FOODS. This is the NO. 1 post war home appliance — with a name that assures excellence in performance.

DISTRIBUTORS... See Amana at the FROZEN FOOD LOCKER CONVENTION, September 25, 26, and 27, Columbus, Ohio. A rare opportunity is open to you with this line.

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NEW 1944 CATALOG

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Proper Maintenance of Refrigerated Locker Storage Plant Equipment

By C. W. Kniffin, Air Conditioning & Refrigeration Application Engineer, Westinghouse Electric Elevator Co., Jersey City, N. J.*

Equipment performance is the common denominator of owner and manufacturer. It is that function of equipment upon which the success of the manufacturer depends. It is that result for which the owner pays his money. It is vitally important to both. Regardless of how careful the equipment is manufactured, the thin thread connnecting this equipment and performance is in the owners' hands. This thread is maintenance.

Next to the latch on the locker room door, the most important equipment in a locker storage plant is the refrigerating system.

The whole maintenance problem may be divided into two parts. (1) Preventive maintenance and (2) Corrective maintenance. What is not done by the first must be done by the second. The first is the economical, the second the expensive method. Corrective maintenance is expensive in both labor and material. During the war, with both of these items limited, plant operators should have a definite preventive maintenance program.

The maintenance of proper air conditions, of temperature, humidity, and purity is the first consideration.

The optimum temperatures for locker storage plant service are well known. Lower temperatures than required are paid for at a premium price. Higher temperatures lead to spoilage. Variation of temperature is most important. It directly controls dessication. No vapor-proof wrapping can prevent dessication in a variable temperature.

*An address at the Conference of Frozen Food Locker Managers, University of Kentucky, Lexington, Ky.

KEEP A LOG

Although locker plant operators normally depend upon automatic control to maintain conditions, it is recommended that they keep a daily log, either by manual readings, or preferably by recording instruments. This will accomplish a double purpose. It will indicate the existence of mechanical difficulties, and be invaluable in the negotiation of damage claims.

Locker storage refrigeration is accomplished by the circulation of a refrigerant through a closed, pressure tight system. By this means, heat is absorbed by the vaporization of refrigerant liquid and dissipated to the atmosphere by condensation of the refrigerant vapor. If refrigerants were cheap and sufficiently abundant, no recirculating system would be required.

REFRIGERANTS USED

Locker storage refrigeration uses mainly one of two refrigerants, Anhydrous ammonia or "Freon." The protection of the refrigerant charge is the second maintenance problem. Loss of ammonia is dangerous to life and property. Public opinion objects to P. O. (Plant Odor).

With the leakage of "Freon" refrigerants there is little danger involved, but there is a present shortage of this material. Loss of either refrigerant indicates costly operation, and early refrigeration failure.

'MOST UNSATISFACTORY JOB'

Looking for refrigerant leaks has been described as the most unsatisfactory job in the world. In the first place, you are looking for something that you do not wish to find, and in the second place, if you find none you wonder if you have done the job well. This is an important job that must be conscientiously carried out.

Much has been done by the equipment manufacturers, since the inception of your industry, to reduce maintenance requirements. Let me briefly trace this development. Flat belt idler drive was first replaced by multiple V-belts, and finally by direct connection of motor and compressor. Forced feed lubrication of compressor bearings replaced splash oiling. Refrigerant cooled motors have replaced air cooled motors. Today we have the compressors and motors direct connected, entirely enclosed, with stuffing boxes eliminated. The motor is internally cooled by suction vapor and never requires separate bearing lubrication. This equipment uses "Freon" as the refrigerant.

Many other improvements have been made in evaporators, condensers, and controls, with the object of improved efficiency, and reduction of service requirements. Postwar planning is now being carried out with the idea of reducing the cost of ownership of your equipment.

Substitute materials, as a war measure, have added in some cases to normal operating problems. This effect on a long term policy can be neglected. The overall effect of the war on the refrigeration equipment manufacturing industry is far greater than can be foretold at this time.

PREVENTIVE PROGRAM

A sensible preventive maintenance program should be based on a monthly inspection and service record. Such a record will be valuable as a time saver for outside engineers, should their help be required.

For this record a minimum of five items should be recorded.

1. Power and water consumption.
2. Operating pressures.
3. Amount of refrigerant in system or amount added.
4. Net amount of lubricant added to compressor.
5. Off season work required.

There are in addition six items that should be checked over monthly.

1. The system should be inspected for refrigerant leaks.
2. Frost accumulation on evaporator surface watched.
3. Lubrication of bearings should be provided for.
4. Belt adjustment must be kept correct.
5. You should listen for noise and vibration.
6. Keep looking for corrosion.

KEEP DOOR OPERATIVE

Let me repeat, next to the latch on the locker room door, the most important equipment in your plant is the refrigerating system. This is meant to emphasize the necessity of attention to the small things in your plant, especially the equipment with which the patron comes in contact. Your advertising is from person to person. Keep each individual satisfied and all are satisfied. The refrigerator door, though necessarily heavy, must swing easily. To have a patron locked in a low temperature room would be a calamity.

How far you should go with corrective maintenance depends upon

1. The ability of your help.
2. The availability of a service organization.
3. The availability of replacement parts.
4. The availability of time for repairs.
5. Availability of tools.

Of these, the two most important items are the replacement parts and tools. The manufacturer of your equipment will be glad to recommend to you a list of spare parts which you will probably need. You should obtain this list and give it careful consideration.

(Concluded on Page 25, Column 1)

Exact KNOWLEDGE

THE Advance Die and Tool Company . . . committed to the building of best Sheet Metal Stamping Dies . . . determined to acquire *exact knowledge* of die making steels and alloys.

An extensive series of laboratory tests were conducted to scientifically determine those die making materials which—

Provide Longest Tool Life
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During these tests, varying heat treating procedures were observed, providing the information necessary to heat treat die materials to the peak of their effectiveness.

Extraordinary performances of hundreds of Advance Dies in the nation's War Production Program attest to the value of *exact knowledge.* A single instance in which Advance punches were used for drawing steel cartridge cases is typical.

The operation required punches of great strength, freedom from galling and resistance to abrasion. Advance punches consistently produced 300% to 400% more cases than any other punches tried.

Advance Die and Tool Company are using its design and manufacturing facilities in the war effort for the duration . . . but, when peace comes, plan to use Advance *exact knowledge* in building your sheet metal stamping tools and dies.

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The Proof *of the* Product is *TIME*

TIME marches on—irresistibly, without bias or prejudice—discarding by the roadside false hopes and ideas, retaining those things that have made a contribution to the comfort, happiness, and understanding of the world. Human mind is limited and subject to error, but time sifts the chaff from the wheat with absolute infallibility.

Time marches on—in refrigeration. Since Pearl Harbor, while the industry has put its efforts mainly to creation of more and more diabolical instruments of destruction, time has continued its constructive criticism.

Unhampered by urgencies of production and exactions on inventive skill, time has disclosed the weaknesses in prewar units and proven the sound engineering ideas.

Time marches on—with Chieftain. Time has proven that the fundamental engineering and production methods of Chieftain are correct. This has been demonstrated in the service-free performance of hundreds of thousands of Chieftain units during wartime and by the insistent demand for Chieftain units as a replacement for many other units that have failed and been discarded by the wayside.

The postwar Chieftain—more particularly the hermetic—has additional safeguards against electrical failure, thereby allowing greater flexibility in application. It now can be used with restrictor tube, float, or expansion valve or other expansion means. A greater range of sizes, more perfect balance and even greater quietness and freedom from vibration are other outstanding characteristics.

Time marches on—in our customer's plant, demonstrating what is necessary for proper design and installation in order to assure trouble-free service of the completed product.

Before deciding on your postwar refrigerating equipment investigate CHIEFTAIN, "Proven by Time".

Chieftain TECUMSEH PRODUCTS CO.
TECUMSEH • MICHIGAN

Maintenance Plan For a Locker Plant

(Concluded from Page 24, Column 5)

CHECK PART LISTS

It will not be necessary for you to own all of these items yourself. There are in general three sources for their procurement. The manufacturer maintains a fairly complete stock of service parts. Your service agency normally carries some. Other parts will be available in the Refrigeration Jobbers stock. Don't overlook this source.

Check over your parts list, and indicate where each part can be obtained and how quickly. Do this now. Then buy those which cannot be obtained within 12 hours. Review this situation once a year.

Tools are an important item. Your service organization will have all that are necessary for your equipment. He probably will have special tools for equipment manufactured by others. Unfortunately they cannot all be carried by the service engineer. You should have available in a definite, convenient place such common tools as are normally required.

KEEP TOOLS HANDY

Some special tools are desirable. Your service organization manager will give you his recommendation. I might mention a few for your guidance. If you use an irritating refrigerant, get a gas mask. Keep it in a case accessible from an outside door. You should have a leak detector, a halide torch for "Freon," Sulphur tapers and litmus paper for ammonia. A tube expander if you have shell and tube equipment.

No matter how well your own help are equipped, call on your service organization once a year. Have your plant inspected thoroughly by an outsider. You will be surprised how much he will see that is just commonplace to you. It is just the same old principle, that a specialist is a man with a new viewpoint. Compare this principle with the slogan "See Your Doctor once a year."

Refrigeration service is a real science. Most organizations have spent years training their employes. Their greatest problem is that of having sufficient men to meet the peak demand for service. Their greatest number of service calls occur in the hottest months. It would help the service organization, and help you, if you would plan any major repair jobs in the winter months. A preventive maintenance program helps you do this.

No paper on plant maintenance can neglect the important matter of insulation. If you have taken the advice of insulation specialists at the time of installation, you have little worry. The present practice is based on years of construction experience, and except for damage by mechanical means and reduction of temperature below your design limits, your insulation should last many years.

CARE OF INSULATION

I have only four suggestions for the care of this item:

1. Protect vulnerable places where you find trucks or merchandise damaging walls, by buffer boards.
2. Keep watching for condensation or frost accumulation, this means air leakage.
3. Don't vary temperatures, or operate too low.
4. Start with the best material available.

American Coils Makes Special Processing Unit

NEWARK, N. J.—Claimed to remove up to 90% of latent heat in addition to providing adjustable control of sensible heat, a new wall-type air conditioner known as a "Comfortaire" unit has been introduced by American Coils Co. here.

The conditioner operation is completely automatic, it is said, being controlled by a humidistat temperature control and a solenoid valve. Condensing unit is set to defrost automatically on each off-cycle. Since the air entering and leaving the unit by-passes the cooling coil, dehumidification is said to be accomplished without appreciable loss of temperature. Cooler temperatures may be obtained by a simple manual adjustment.

Necessity for expensive re-heating equipment is avoided through this design, which also reduces operating costs by 60%, the company says. Two sizes of the unit are now ready for delivery on AA-5 or L-38 ratings.

American Coils expects the "Comfortaire" conditioner to meet the demand for an inexpensive dehumidifier in such essential applications as textiles, parachute storage, printing plants, photographic studios, drafting rooms, instrument assembly rooms, Nylon and silk manufacture, paint spray drying rooms, and candy storage and display.

Walk-In Boxes Mounted On Destroyers' Decks

CHICAGO — Large, walk-in type cooler boxes are now being mounted on the decks of 1,200-ton U. S. Navy destroyers to provide refrigerated storage space for perishable foods, reports Lindsay & Lindsay here, producer of Lindsay Structure building materials.

The boxes are 10½ ft. by 5½ ft. by 5 ft. and are divided into two compartments, one for meat which is kept at 10° to 15° F., and the other for vegetables, which is held at 35° F. Both compartments are equipped with drain pans, and in the vegetable room there is also a drain plug.

Produced by Shaer & Turner Engineering Co. of Boston, the boxes are built of double wall, all-steel Lindsay structure with six inches of fiberglas insulation. Instead of the wood furring used in conventional refrigerator construction, the boxes employ phenolic pencil spacers as the only connecting members between the inner and outer steel walls.

This eliminates all wood or through-metal contact in the refrigerator shell, and is claimed to provide an unbroken zone of insulation and resultant improved operating efficiency.

Condensing unit is mounted on top of the cooler box in a separate housing measuring approximately 5 ft. by 5 ft. by 3 ft. Each compartment of the box is equipped with coils and a complete manifold for connection to the condensing unit.

The cooler is equipped with a 4-inch channel base for welding to the top deck of the destroyer, where the unit is subjected to all extremes of weather.

Safeguard Your Service with
GENUINE CARRENE No. 1

No. 1 on the Carrene label is your safeguard that this refrigerant has been super-refined to a greater degree than any other refrigerant on the market. This means that all impurities have been eliminated, thus removing any possibility of damage to the refrigeration unit.

Remember, Grunow is the only authorized distributor of Carrene No. 1 for household refrigerators. Insist on getting the genuine by checking the Grunow Carrene No. 1 label.

Order from your nearest Grunow parts distributor.

● SEND FOR NEW, CONDENSED GRUNOW SERVICE MANUAL! PRICE 50c

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NIAGARA
DUO-PASS
AERO-CONDENSER

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Patented Duo-Pass prevents scaling of condenser tubes.

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25 Years of Service in Air Engineering
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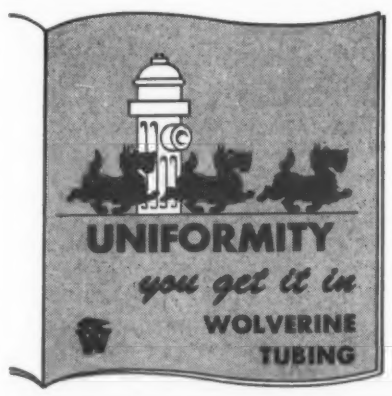


A FILTERING ELEMENT IS NOT ONLY DESIRABLE BUT IMPERATIVE IN AN EFFICIENTLY OPERATING DEHYDRATOR

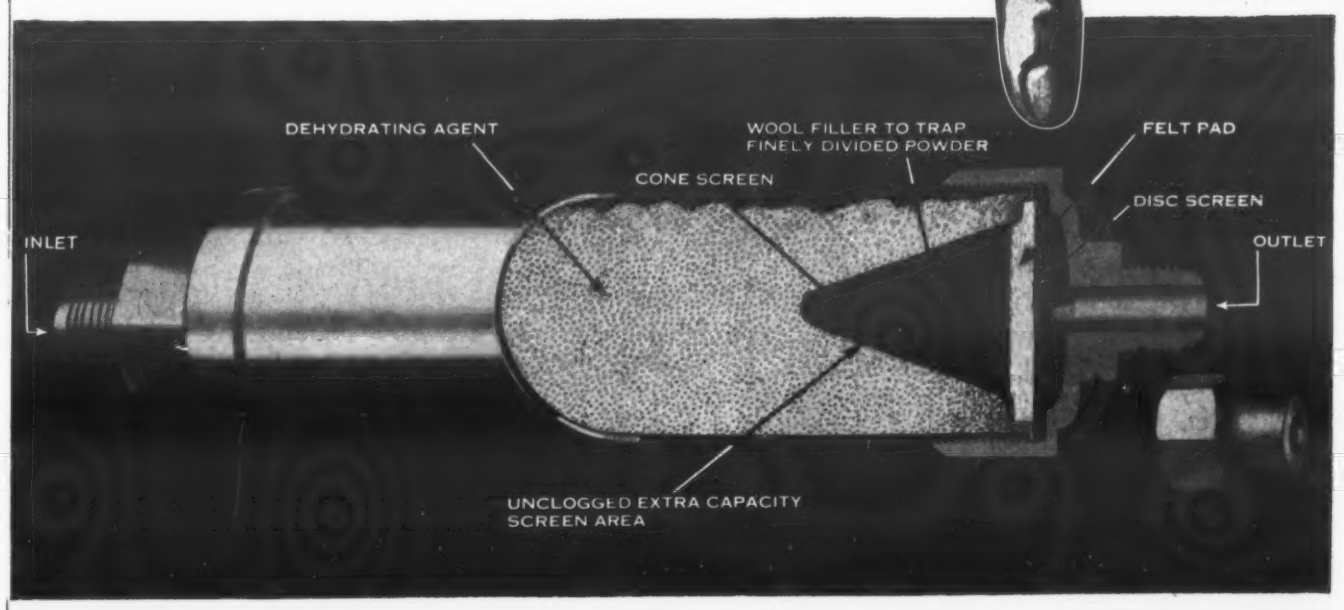
Mueller Brass Co. Filters and Driers feature the CONE SCREEN OUTLET, a specially designed filtering element that adds immeasurably to the life and efficiency of driers and filters.

Almost all crystalline dehydrating agents are subject to a certain amount of abrasion while a dehydrator is in service. Small portions of the dehydrating agent break down into very fine powder and crystals. Unless a well-designed filtering element is incorporated in a dehydrator, these fine crystals and powder have a tendency to clog the outlet filter, resulting in restriction to the flow of refrigerant.

With the MBCo. CONE SCREEN OUTLET, such finer crystals and powder are forced to the base of the cone, leaving the center and tip of the screen open to the free flow of refrigerant.

In addition, the cone screen is filled with pure wool which traps such particles that are sufficiently fine to pass through the screen mesh.

Particular attention has been paid to screen areas in Mueller Brass Co. Filters and Dehydrators, so that each size permits efficient passage to the maximum refrigerant volume that is used in a particular size refrigerant line.



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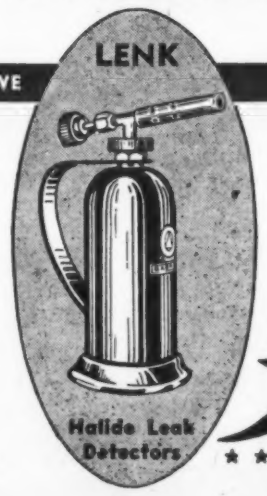
Stop REFRIGERANT GAS LEAKS

SWIFT AND POSITIVE LEAK DETECTION



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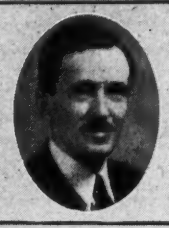
Advance Mfg. Co., Auto Parts Producers, To Make Refrigerated Truck Unit

DETROIT — Advance Mfg. Inc., here, peacetime producer of parts for the automobile industry, but now manufacturing airplane parts, is entering the truck refrigeration field, having purchased the Motor Truck Refrigeration Co. Continuing the practice of the Motor Truck company, Advance Mfg. will market its units through Fruehauf Trailer Co. here.

Under development is a new type truck refrigeration unit, which is a self-contained job to be mounted inside the front end of the trailer. Most truck coolers today are not self-contained, and the condensing unit is mounted outside on the front or underneath the body.

A. A. Amlinger is president of the company, which was founded in 1933. Walter Campbell is vice president.



Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

Varying the Capacity of a Condensing Unit (Part 1)

There are two conditions that may make it necessary for the capacity of the condensing unit to be changed; (1) addition or reduction of load; (2) change of evaporator temperature. Under some circumstances both of these conditions may occur at the same time.

To illustrate the first condition, consider a 1-hp. condensing unit connected to two 6 feet by 8 feet by 8 feet walk-in coolers maintained at 40° F. The average evaporator temperature is 25° F. so, at a suction pressure of 24.6 p.s.i. ("Freon-12") corresponding to 25° F., the capacity of the unit would be approximately 10,000 B.t.u. per hour.

Let us say that there is a solenoid valve in each branch suction line, controlled by a thermostat set at 40°, in each respective cooler. If the temperature in one cooler dropped to 40° and that thermostat cut out and closed its solenoid valve, ½ of the load would be immediately taken from the condensing unit. We would then have a 10,000 B.t.u. per hour machine connected to a 5,000 B.t.u. per hour load.

What happens? Obviously the condensing unit capacity drops to 5,000 B.t.u. per hour to match the load, but to do so the suction pressure must drop to about 3½ p.s.i. which corresponds to -2° F.

In other words, the excess capacity will enable the 10,000 B.t.u. condensing unit to pull the evaporator down to just below zero degrees before the condensing unit capacity is sufficiently reduced that it corresponds to the load, 5,000 B.t.u. per hour.

So instead of a 15° temperature difference (40° — 25°) there is a temperature difference of 42° (from 40° to minus 2°).

At a -2° F. temperature, the ice and frost accumulation on the evaporator is excessive, and an excessive length of time is required to melt it off. (The temperature of the evaporator must rise 35°, from -2° to 33°, instead of 8°, 25° to 33°,—over four times as much.)

This means very long runs and very long off periods resulting in wide fluctuation of temperatures of the air and food in the cooler. What would really be desirable would be to cut in half the capacity of the condensing unit at the same time as ½ the load dropped off.

MACHINE CAPACITY CHANGES WITH SUCTION PRESSURE CHANGE

As described in the Sept. 11 issue, there are conditions wherein the load on the condensing unit changes as a result of changes in the temperature of the fixture that it is refrigerating. As in the case of the fur storage job, the temperature during the killing cycle is 20° instead of the 40° carried normally. This 20° drop in temperature means at least a 50% increase in the load. (In some types of applications the increase might be much more than 50%.)

To compensate for this 50% increase in load we would want to increase the capacity of the condensing unit 50%. **But**, this would not mean increasing the displacement 50%, for the capacity of a condensing unit goes **down** as the evaporator temperature and suction pressure go down (in approximately the same ratio as the **absolute** suction pressure).

So instead of the displacement having to be increased 50% to compensate for an increase of load of 50% due to a lower cabinet temperature, the displacement would have to be **doubled**.

CHANGING CAPACITY BY PARTIALLY BY-PASSING COMPRESSOR

Now let us consider ways in which the capacity of a compressor may be varied.

Fig. 1 shows one method of varying the compressor by "unloading" the discharge into the suction. It involves by-passing some of the gas from the condenser back to the suction line so as to keep the suction pressure up. In fact we can put an automatic expansion valve of suitable capacity in the by-pass line and set it slightly less than the normal suction pressure.

If one of the cabinets becomes cold enough, its thermostat 4A opens which (a) closes the solenoid valve 3A in the branch suction line, (b) de-energizes relay coil 5A, allowing its armature to drop to the lower contact, which, (c) energizes (opens) by-pass solenoid 7M (whether the armature of relay 5B is on the upper

(Concluded on Page 27, Column 1)

bubbles in champagne **YES**

in this Alco Valve test basin **NO**

Bubbles in the right place are fine. But when this sharp-eyed Alco Valve inspector sees even the most minute bubbles in this test basin, the valve body casting he is testing goes to the "reject" bin.

Whether bronze, brass or steel, no Alco Valve body casting is taken for granted. And the customary visual inspection is not enough. There must be assurance that the wall of the casting is as leakproof and sound as every working part of the valve.

So every casting is placed in a special device and, with high air pressure inside, immersed in the test basin. Only the perfect castings are retained.

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● THE PROVING GROUNDS OF WAR offer dramatic confirmation of the ability of Cordley Electric Water Coolers to withstand hard knocks. Supplied since 1942 for shipboard use to the Navy (Contract NKs 9982) and to the Maritime Commission. These same Battle Proven Coolers are now available for essential uses on land. Write for facts.

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Tomorrows AIR-CONDITIONING AND REFRIGERATION EQUIPMENT *is being planned Today!*

Foresighted manufacturers are planning and designing air-conditioning equipment to sell in postwar markets. Many improvements and refinements will be incorporated. Dependable motor power must be given careful consideration, and Wagner engineers too are looking ahead and designing motors that will do an economical and dependable job on such new postwar equipment.

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Consider **Wagner MOTORS** *in your Postwar plans . . .*

Wagner engineers are making a straight-from-the-shoulder offer to help you—to make your problem their problem—to assist you in every way possible to turn out exactly what should be the motor drive on your apparatus.

Wagner Type RA, repulsion-start-induction motor. Made in various speeds, frequencies, and voltages; rigid- or resilient-mounted; 1/8- to 15-hp.

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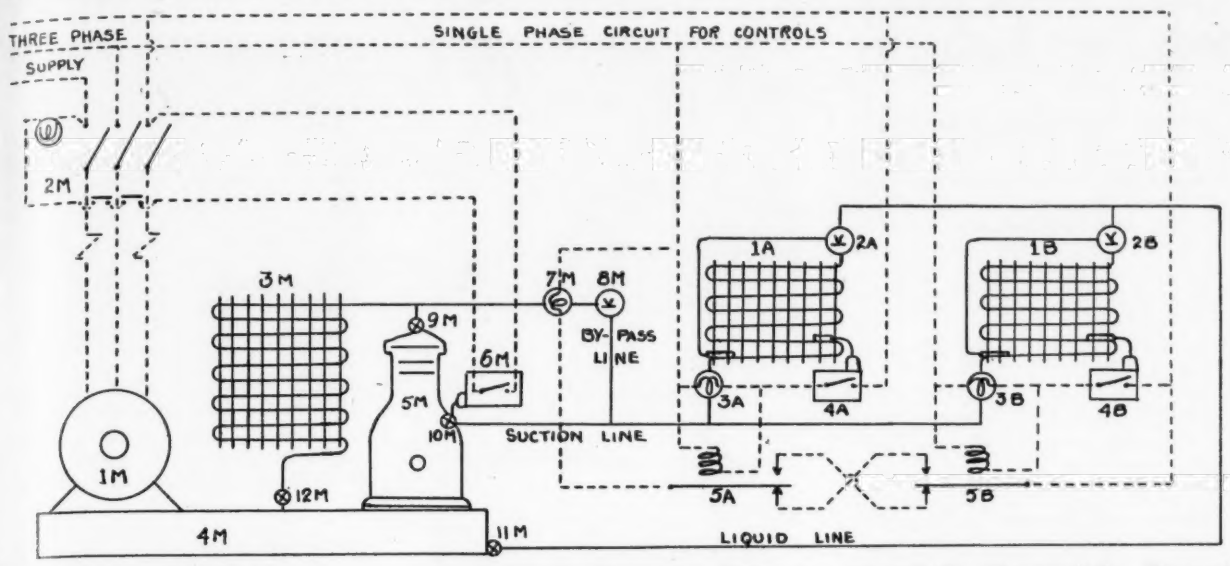
If the equipment you are now manufacturing is essential to war production plants, housing projects, or to the armed forces, Wagner will gladly figure with you on your requirements. Consult the nearest of Wagner's 29 branches, located in principal cities and manned by trained field engineers.

Write FOR BULLETINS

Bulletins MU-182 and MU-183 fully describe the comprehensive line of Wagner motors. Service Instruction Manuals MU-7B and MU-30B too will be of help.

Wagner Electric Corporation
ESTABLISHED 1891
6441 Plymouth Avenue, St. Louis 14, Mo., U. S. A.
ELECTRICAL AND AUTOMOTIVE PRODUCTS

Automatic Unloader With An Automatic Expansion Valve In the By-Pass



1M Condensing Unit Motor.
2M Magnetic Starting Switch.
3M Condenser (air-cooled).
4M Liquid Receiver.
5M Compressor (2 cylinder vertical).
6M Low Pressure Control.
7M Automatic Expansion Valve in By-pass.
8M Solenoid Valve in By-pass.
9M Discharge Shut-off Valve.
10M Suction Shut-off Valve.
11M Receiver Shut-off Valve.
12M Condenser Shut-off Valve.
1A and 1B Evaporator Coils.
9A and 2B Thermostatic Expansion Valves.
3A and 3B Suction Line Solenoid Valves.
4A and 4B Thermostats.
5A and 5B Single-pole, Double-throw Relay.

Varying Condensing Unit Capacity By Partially By-Passing Compressor

(Concluded from Page 26, Column 5)

or lower contact; that is, whether the other thermostat is open or closed does not matter), allows gas to by-pass from the discharge line to the suction line, thus holding up the suction pressure to that corresponding to the setting of the by-pass automatic expansion valve 8M.

By-passing this gas reduces the compressor capacity, for the by-passed gas does no useful work. The hot gas from the discharge line must be either passed through a small finned coil to remove most of the superheat or it must be mixed with the cool vapor from the evaporator far enough from the compressor that its superheat is absorbed; otherwise the superheat may cause excessive heating of the compressor.

If the by-pass is open ⅓ or more of the time the condensing unit is in operation, the compressor head may get rather hot, and a water cooled head may be required. Overfeeding the thermostatic expansion valve to enrich the suction gas will help remove this superheat. A cold suction line indicates some unevaporated droplets of refrigerant which will absorb the superheat in vaporizing.

After both thermostats have been satisfied and have closed their respective solenoids, there will be no vapor going back to the compressor, and in spite of the by-pass the suction pressure will drop a great deal below normal.

The low-pressure control 6M can be set at this low pressure and it will therefore stop the condensing unit motor when both thermostats have been satisfied; that is, when both cabinets are cold enough.

Conversely, if either cabinet warms up and its thermostat closes and opens its respective solenoid, the pressure in its evaporator will be released and will close the low-pressure control, starting the condensing unit motor.

Incidentally, this motor may be single-phase A.C., or polyphase; but for purpose of illustration the 3-phase motor is shown. A single-phase tap-off may be taken from the 3-phase to supply the control circuits (except the low-pressure control) as shown in the illustration; or, if desirable, a separate control circuit may be taken from a different circuit and at a different voltage and frequency, since there is no electrical connection between the thermostats, solenoids, and relays and the motor driving the condensing unit.

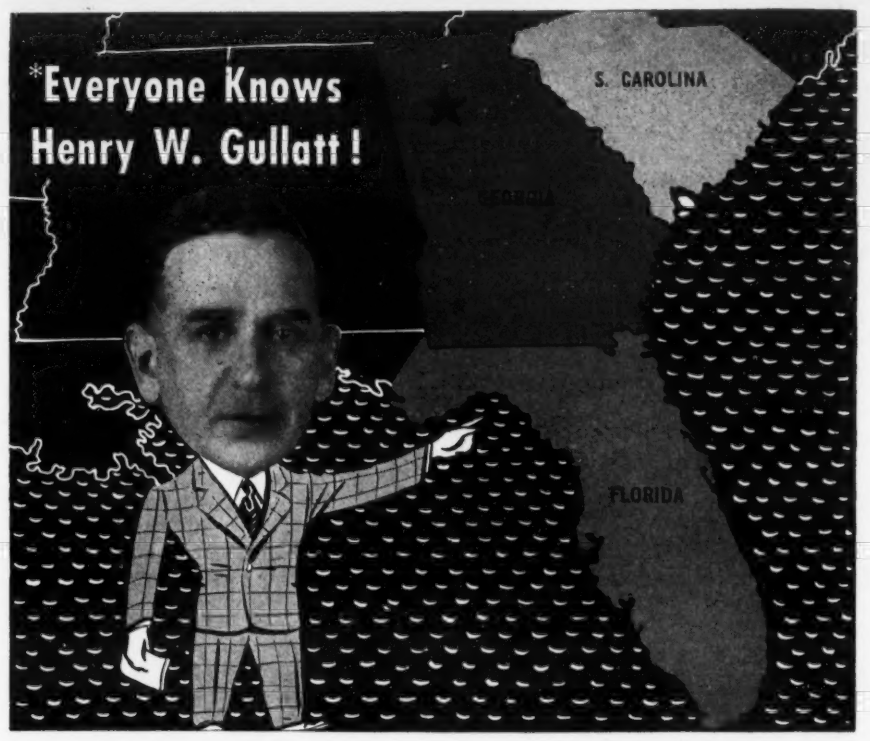
If either or both evaporators are the blower type, the blower motors should be wired in parallel with their respective solenoids and relay coils, so that they stop when their thermostat is satisfied. Some engineers may prefer, however, to wire these blower motors for continuous operation.

The by-pass solenoid valve 8M, automatic expansion valve 7M, or similar throttling valve to maintain constant outlet pressure should have an orifice diameter at least ⅔ of the inside diameter of the hot-gas discharge line from the compressor to the condenser.

ADVANTAGES, DISADVANTAGES

This method of varying the capacity of a compressor is rather wasteful for there is very little reduction of current consumption when the load drops off due to one evaporator being cut off. It is, however, adaptable to installations wherein the load varies widely as it will allow the suction pressure to remain about constant regardless of wide fluctuations in load. If the by-pass is open only a small percentage of the time, the difference in cost of operation will be negligible.

(To Be Continued)



*That is, everyone in the refrigeration industry in South Carolina, Georgia and Florida. If you are in that territory, you're invited to get in touch with Mr. Gullatt, 29 Haynes St., N.W., Atlanta, Georgia, any time you want speedy, efficient Ansul service.

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CHEMICAL COMPANY
Agents for Kinetic's "FREON-12" and "FREON-22"
MARINETTE • WISCONSIN
Sulfur Dioxide ANSUL *REG U.S. PAT OFF. Methyl Chloride ANSUL
AC-71A
TWENTY-NINE YEARS OF KNOWING HOW

REFRIGERATION
• PARTS
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AIRO SERVICE Where and When You Want 'Em FAST!

..Yes, AIRO SERVICE means fast deliveries to every state in the country . . . gives YOUR Service Shop necessary parts and supplies to meet these unexpected RUSH JOBS!

"Smart" Servicemen are tying up NOW with Airo Service because the speedy delivery being given by Airo NOW is strong indication of the superior, reliable, split-second service to be anticipated AFTER the War.

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Send NOW for the Airo Victory Catalog, listing Refrigeration parts, tools, and equipment. Use your letterhead, please.

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Examine a Cross Section of
BUNDYWELD STEEL TUBING

Get a Close Look at Its Solid Double Wall

With Bundyweld under the glass, you immediately see its solid double wall. To make this tough tubing, Bundy rolls a single strip of copper-coated S.A.E. 1010 steel twice around laterally into tubular form.

The tube is then passed through a brazing furnace at just the correct temperature to insure a perfect bond between the copper and steel.

Oxides cannot form in the brazing process because the atmosphere in the furnace is so carefully controlled. The tube goes from the brazing furnace through a long cooling chamber. When it comes out, it has a fine mirror-like finish, both inside and out.

Bundyweld is furnished hard or annealed, in a wide range of standard diameters and gauges up to ⅝" O.D. Special sizes cold drawn as desired. Also furnished in Monel.

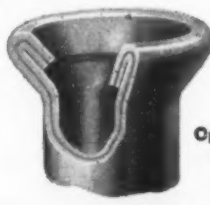
Bundy engineers are ready to help you solve your tubing problems for the products of peace. Write Bundy Tubing Company, Detroit 13, Mich.

DOUBLE FLARING

Operation No. 1

In hydraulic brake lines and in all lines where there may be over-torqueing or where higher pressures are carried Bundy recommends the double flare illustrated here.

This double flare gives almost twice the amount of metal at the seat and safely permits frequent removal and replacement of fittings, as well as over-torqueing. It is held to close tolerance and is leakproof.



Operation No. 2

Food is Vital.
Plant a Victory Garden This Year.

"FAMOUS LIFE LINES" FOR WAR AND PEACE
BUNDY TUBING
ENGINEERED TO YOUR EXPECTATIONS

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Rutan & Company 112 South 16th Street Philadelphia 2, Pennsylvania
Eagle Metals Company 3628 East Marginal Way Seattle 4, Washington

ARMY E NAVY
"BIRD - IN - HAND" FORMULA

Post war visionaries would change the world over night. But Merchant & Evans Company, like other responsible manufacturers, will risk being called "conservative" by refusing to release untried, unproven mechanical changes just because they are new—or revolutionary. M & E's strong position as a maker of quality compressors has been built on the principle of 'time and test' before sale to the public.

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MERCHANT & EVANS COMPANY
PHILADELPHIA, PENNA. • Plant: LANCASTER, PENNA.

Meyer Is Field Manager For Alco In Border States

RICHARD N. MEYER

* * *

ST. LOUIS—Richard N. Meyer has recently been appointed field manager of the St. Louis territory of Alco Valve Co., makers of refrigerant control valves.

The territory includes the entire states of Kansas, Missouri, Arkansas, and Kentucky. Also included are southern Illinois, southern Indiana, and the western portion of Tennessee.

Mr. Meyer has been manager of Alco's service department for the last two years. He entered the refrigeration and air conditioning field in 1932 for the distributor of General Electric in St. Louis.

Rectangular Cartons Preferred For Packing And Storage of Frozen Foods, Says Authority

Carlton Gives Other Hints For Correct Handling Methods

KNOXVILLE, Tenn.—Rectangular instead of round cartons for locker storage are recommended by Harry Carlton, food processing specialist of the University of Tennessee in a new bulletin on "Home-Preparation of Fruits and Vegetables for the Freezer-Locker" recently published under the auspices of the Agricultural Extension Service. He said these rectangular cartons will permit the storage of at least one-third more food in a locker as there is less wasted space.

Dr. Carlton also stressed the point that the containers and wrapping materials used be not only air-tight and waterproof, but moisture-vaporproof as well. If not, the dry air in the locker will draw out the moisture of the stored foods.

"The most popular container is a rectangular paperboard carton, lined with moisture-vaporproof cellophane," said Dr. Carlton. "The lining is usually a bag which can be heat sealed after filling. The heat-sealing may be done in the home with a flatiron, curling iron, or soldering iron.

"Care must be taken to apply sufficient heat to seal the bag without scorching the material. The setting for silk on an automatic iron works out well. The touching surfaces should be clean and dry. The top of the bag usually is folded over and the four surfaces are sealed together. The sealed bag may be used for either dry or liquid packs. When it is used for liquid packs, space should be allowed for expansion in freezing —10% of the height is sufficient for all products.

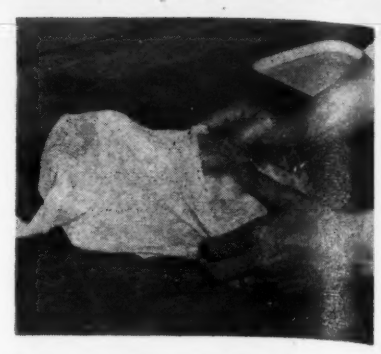
"The rectangular cartons are light and convenient and will permit the storage of at least one-third more food in a locker or home storage unit than if round containers are used."

Glass fruit jars, tin cans, heavily waxed paper cups and miscellaneous containers that happen to be available, are also used in locker storage. Properly sealed, the glass and tin are moisture-vaporproof but the glass is liable to break. Waxed-paper cups such as are used for ice cream, cottage cheese, and similar products usually give inadequate protection unless lined with a moisture-vaporproof material. Containers should be straight-sided to permit easy removal of the frozen contents.

In all types of containers, when a liquid pack is made, a 10% space must be allowed for expansion when freezing, otherwise the container will be broken by the expansion, and leakage will result. Heavy fruit sirups, especially cherry, do not usually freeze solid even at zero, and not only the freezer but the locker and its contents become smeared with the leaking juice, Mr. Carlton said.

Preparing Vegetables For Freezing

In preparing vegetables for freezing, first clean them in cold water; cut out midrib.



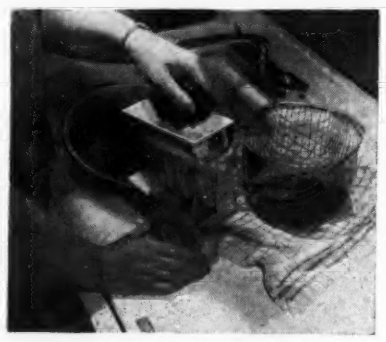
Paper wrapping alone will not keep meat from desiccation during storage. Place paper-wrapped meat in stockinette (as shown in the above illustration), then tie securely.

Then agitate in large pan of boiling water. Scalding time will vary: New Zealand spinach, kale, turnip and mustard greens, Chinese cabbage should get 70 seconds; spinach, beet greens, collards, Swiss chard, 150 seconds.

Heat sealing of packages for freezing is most important to prevent desiccation during storage. An electric hot plate (as shown in the above picture), an electric hand iron, or an electric curling iron can be utilized for this task. Apply warm iron to an apothecary's fold in bags, liners, or overfolds around cartons.

Chill in cold running water for 5 minutes.

When the packages are properly packaged and then labeled, they are ready for the freezer. But the user must be certain not to pack the home freezer too tight. All the pictures on this page are from a motion picture on methods of preparing foods for quick-freezing, produced by the General Electric Consumers Institute at Bridgeport, Conn.



Then squeeze out water; package.

* * *

General Electric Makes Motion Picture On Preparation of Food For Home Freezing

BRIDGEPORT, Conn.—In answer to a growing demand for more information about the preparation of foods for freezing, the General Electric Consumers Institute, Bridgeport, Conn., has produced the first 16-mm. full-color sound motion picture covering this subject in detail.

Demonstrated in the movie are preparation steps for freezing fruits and vegetables, and the cooking of frozen foods. Also included are details on proper cutting, types of packaging, and wrapping for meats, fish, and fowl.

The film was written and produced under the technical direction of Dr. Donald K. Tressler, Manager of the Consumers Institute, who pioneered the frozen food industry back in 1929 and is recognized as the country's foremost authority on the subject.

The fruit and vegetable preparation scenes were executed by Adelaide Fellows, Consumers Institute staff member who is well known throughout the country for the able platform demonstrations and training classes she has conducted in the field for G-E Consumers Institute. Meat, fish, and fowl preparation scenes were filmed in a model locker plant at Lancaster, Pa.

Potential audience for this educational film is expected to run well into the millions for it will be made available to utilities, department stores, locker operators, REA cooperatives, schools and colleges for showing wherever an interested group of consumers can be assembled. All Appliance and Merchandise district offices of the General Electric Co. will schedule bookings of the film for their respective territories.

Carrier Making Plans On Home Freezers

SYRACUSE, N. Y. — Definitely slated to enter the room conditioner and food freezer fields after the war, Carrier Corp. is not yet sure just how far it will push these consumer items, according to a prospectus issued when the company offered 70,000 shares of cumulative preferred stock recently.

The market for home air conditioning has not been developed extensively, states the Carrier prospectus, so the company does not now know to what extent it will operate in this field after the war.

Heavy emphasis will be placed on its refrigeration business after the war, especially in the field of food preservation, Carrier Corp. declared in its prospectus.

Yerigan With General Mills Appliance Department

MINNEAPOLIS — M. C. Yerigan, formerly connected with the electrical appliance division of Westinghouse Electric & Mfg. Co., has been appointed product and service supervisor of the new home appliance department of General Mills here.

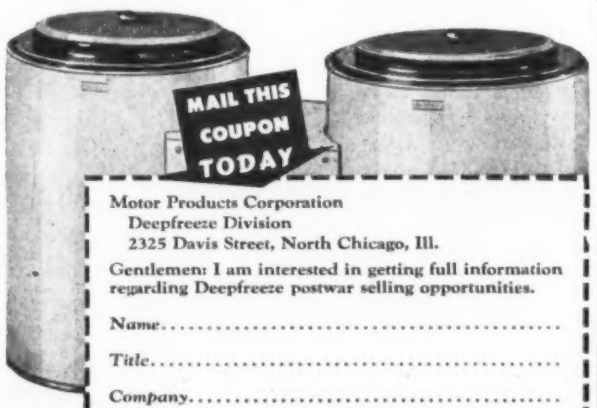
Mrs. America has learned a lot of useful things during wartime, about the importance of food conservation, the importance of better living.

And when she thinks of food conservation and better living, Mrs. America thinks of a Deepfreeze. She's seen a Deepfreeze in action...conserving war-vital meats, poultry, fruits and vegetables...saving time and work, in marketing, in meal preparation and serving. She knows there's no other home freezer "just like" the Deepfreeze because no other home freezer can offer the exclusive, patent-protected Deepfreeze freezing principle.

DEEPFREEZE ALONE PROVIDES 100% PRIMARY FREEZING SURFACE

In a Deepfreeze only, a solid wall of direct-action freezing surface entirely surrounds the food storage chamber. Thus, in a Deepfreeze the maximum temperature differential between refrigerant and food storage chamber is less than two degrees! This prevents food dehydration, keeps foods fresher, longer ...and keeps operating costs lower. And the clean "machinery-free" interior means more food storage space.

Leading magazines are carrying the story of the Deepfreeze to Mrs. America—in full-page advertisements. Even during wartime and limited Deepfreeze production, response to these advertisements has been phenomenal—a strong indication of the Deepfreeze demand that's waiting to be supplied tomorrow. Get all the facts about Deepfreeze—now!



Motor Products Corporation
Deepfreeze Division
2325 Davis Street, North Chicago, Ill.

Gentlemen: I am interested in getting full information regarding Deepfreeze postwar selling opportunities.

Name.....

Title.....

Company.....

Address.....

AWARDED DETROIT PLANT — ARMY E NAVY

Cartridge cases, airplane nose and tail gun turrets, blood desiccating units and industrial freezing equipment are among the war products that Motor Products Corporation is proud to be making to speed the day of Victory.

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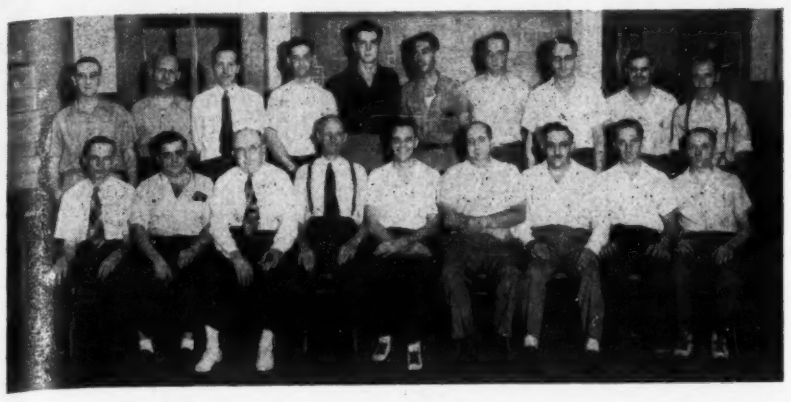
MOTOR PRODUCTS CORPORATION

Deepfreeze Division: 2325 Davis Street, North Chicago, Illinois

Main Plant: Detroit, Michigan — Canadian Plant: Walkerville, Ontario

Men Who Had Part In Youngstown Service School



Officials and students who participated in the National Refrigeration Manpower Training Program in Youngstown, Ohio. Seated (left to right): Donald White, Charles Costello, Charles M. Campbell (secretary, Youngstown R.S.E.S.), Walter E. Barnhill (supervisor, war production training), J. Dallas Nutt (instructor), E. S. Wright (president, Youngstown R.S.E.S. and field coordinator for the program in the Youngstown area), Anthony Elmo, Charles Grunewald, Clyde H. Fisher.

Standing (left to right), William Clayton, Boris Levin, Joseph Furdas, Michael Brady, Albert Marconi, Richard Mathias, Fred C. Morris, Lloyd Coblentz, Wesley Drake, James Klaus. Members of the class not in the picture include James Fercana, Fred N. Porter, Alex Brinkman, Edward Sovik, William Griffith.

Youngstown Group Completes Training

YOUNGSTOWN, Ohio — Twenty out of 24 enrollees in the refrigeration service training course conducted here as part of the National War Manpower Training Program finished out their course and were awarded certificates.

Of the 20 who finished the course approximately half of them have become active in refrigeration service work, and the balance plan to enter the field as soon as they can secure U.S.E.S. releases from their present work.

The Youngstown chapter of the Refrigeration Service Engineers Society was a principal factor in putting on the program. E. S. Wright, president of the Youngstown Chapter, appointed a training committee under the chairmanship of Gene Kreitzburg to organize a class and to arrange all details of training.

Of the 24 men enrolled for the training, some had previous experience in service work, but others came from various lines of endeavor, one being a bank teller, another a plant policeman, several from the steel industry, etc.

J. Dallas Nutt, manager of the Youngstown branch of Refrigeration Supplies Co. and who also has had many years experience in refrigeration service was appointed instructor, and working together with Walter E. Barnhill, supervisor of war production training for the Youngstown Board of Education, arranged the facilities and gathered all materials necessary to conduct the training.

National Refrigeration Service Council To Retain Set-up; Future Course To Be Studied

(Concluded from Page 1, Column 3)

all kinds of vocational schools—both public and private—asking permission to make use of the course.

"This brings up the question—what was the purpose of our program?" stated Mr. Kromer.

"Was it not to meet an emergency in repairing and conserving existing refrigeration equipment, thus helping to keep our industrial machine going at top speed and to preserve our food supply?

"If this is true, then I can hardly see where it can be used to change or set a trend in industry manpower training methods. I think we have a right to sponsor and give aid to a training program only where a request for such assistance is made by some local group."

SEE NEED IN FUTURE

This brought up the question as to future course of the National Refrigeration Service Council, and the possible functions that it or a like group may have in the future.

Several committee members, including Tom Walker, president of the Council of Electric Operating Committees, expressed the idea that "government is going to be in business—your business as well as others—after the war." Thus it was felt that a continuing contact between industry groups and government agencies will be a vital need in the postwar era.

Concerning this point, Fred W. Smith, retiring Chief of the Special Equipment Branch of WPB, told the Council:

"You've established a group that has the fine contact and cooperation with several government agencies. It would be a shame not to maintain it some way.

CONTACT WITH GOVERNMENT

"There's going to be plenty of need for contact between industry groups and government after the war. Along the lines of your own particular activity, the government is making plans to train veterans for jobs in all kinds of business. It is well known that the refrigeration repair and engineering fields are looked upon as one of the brightest possibilities for veterans' training.

"Now unless the industry has some kind of a voice in such programs, it is conceivable that many errors might be made. That is just one example of the kind of activity that will require some industry groups to be in contact with the government."

The Army has "upgraded" men from the refrigeration industry who have entered its ranks, believes Mr. Kromer, and this may bring about a need for training of new men to fill the ranks after the war.

Mr. Kromer is a refrigeration contractor in Cleveland, and has seen eight of his service men become members of the armed forces. Recently he queried these eight employes, and found that only two of them were willing to come back as servicemen. The rest felt that they had advanced willing to come back as service men. other "upgraded" lines of work.

ADVISE SURVEY OF VETERANS

"I think it almost advisable to suggest to Local Councils that they conduct similar surveys of refrigeration service men in their areas who have gone to war, to find out whether they intend to return to the field or not," said Mr. Kromer.

The Local Councils themselves, it was brought out, have come forward with the suggestion that since the Training Program gave them the impetus to get together and organize, they might "stay organized" after the war for the purpose of creating standards for their trade, offer advice on local codes, etc., and to otherwise extend their activity for their own security and protection of the industry and public.

It was debated by the Council members as to whether or not this function was one in which the National Council might have any right to participate.

It was finally decided, in a formal resolution, to have John Wyllie, Jr., chairman of the National Council, appoint a committee of Coucil members to make such recommendations as they might see fit following their experience in the training program, such recommendations to be made to the National Refrigeration War Council, and the refrigeration industry in general.

In the 'Post-War Plans' of Many Farm Families

The BEN-HUR Farm Locker Plant

Talk to any farmer about a farm locker plant and his first comment will be, "wish we had it now." And he'll follow with the promise that food freezing and frozen storage is the FIRST thing he's going to add after the war.

For most farmers already know the benefits of owning a BEN-HUR FARM LOCKER PLANT . . . the economy, time, and food saving advantages of freezing and storing farm-grown vegetables, meat, poultry for delicious meal variety weeks and months later.

This is evidence of your future market for new BEN-HUR FARM LOCKER PLANTS—a volume market ready just as soon as they can be produced.

Let us put your name on the list to receive complete data and sales information on BEN-HUR FARM LOCKER PLANTS, when this data can be released.

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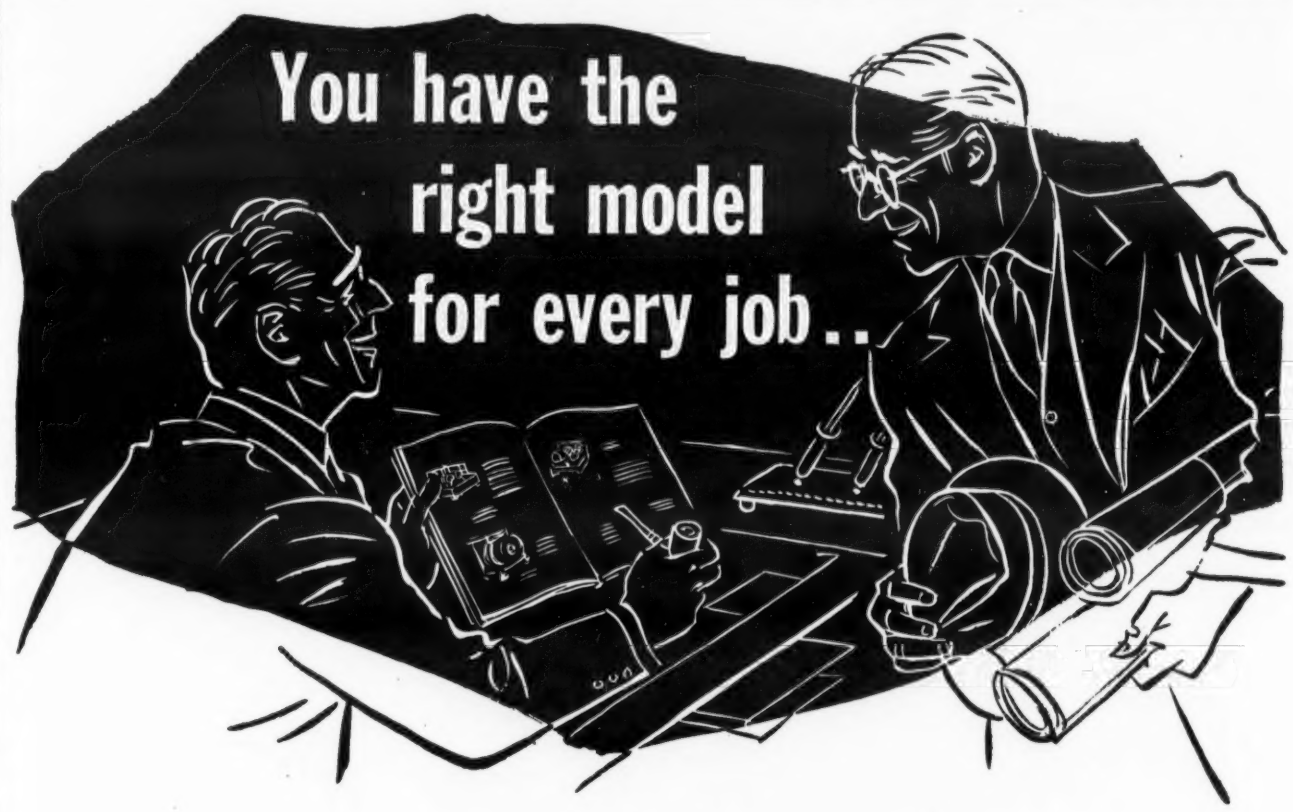
Remember... Today . . . Back Our Fighting Men with MORE War Bonds

BEN-HUR FARM LOCKER PLANTS



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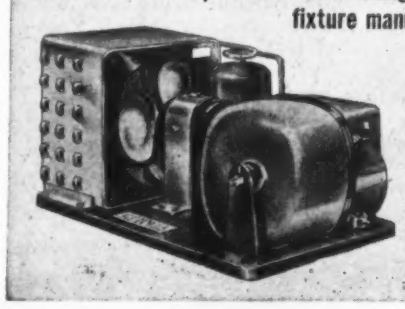
Servel also makes sure you have a head start in new fields as they open up. There is, for example, promise of a vast new post-war market for Servel Units in farm and home freezing units. To help you get your share of this profitable business, Servel has ready now, for post-war production, a whole new line of hermetically sealed condensing units, specially designed for powering these cabinets.

With such a line, and with Servel's record of twenty years of growth in the field, you can be sure of constantly increasing opportunities for expanding your volume. And it's profitable volume, too. Servel's liberal discounts allow ample margins for sales, engineering and service . . . are protected against "loss-leader" competition by Servel's policy of selling only to regularly franchised distributors and to responsible private brand manufacturers.

For complete information about the opportunities for a Servel franchise in your district, write Servel, Inc., Evansville 20, Indiana.

Servel's new "Supermetic" condensing units will serve dealers and fixture manufacturers in every vital field



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SERVEL, Inc.
ELECTRIC REFRIGERATION AND AIR CONDITIONING DIVISION
Evansville 20, Ind.

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Have client seeking manufacturer with facilities adaptable to sheet metal production and mass assembly of complete line of frozen food cabinets. Units fully designed and engineered for production, have achieved prewar market acceptance. Sales organization not a requirement. If you have such facilities, write Box No. 1617, Air Conditioning & Refrigeration News.

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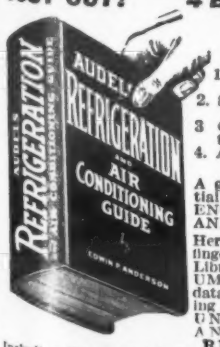

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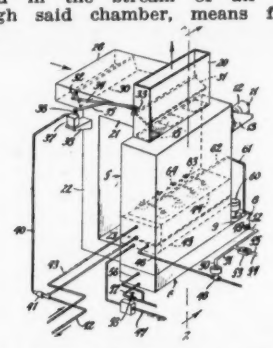
A LOW TEMPERATURE
UNIT COOLER
WITH SELF-CONTAINED
ELECTRICAL DEFROST
(below 32°)
KRAMER TRENTON CO.
TRENTON, S. N. J.

PATENTS

Weeks of Aug. 22 & 29

22,533. (Reissue.) APPARATUS FOR COOLING A STREAM OF FLUID. Martin H. Oldstad, Bayside, and Allen E. Williams, White Plains, N. Y., assignors to Niagara Blower Co., New York, N. Y., a corporation of New York.. Original No. 2,296,946, dated Sept. 29, 1942, Serial No. 419,412, Nov. 17, 1941. Application for reissue Oct. 11, 1943, Serial No. 505,865. 8 Claims. (Cl. 257—2.)

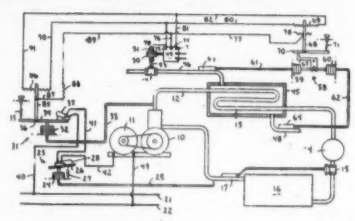
1. A heat exchange device for cooling a stream of fluid, comprising means forming a chamber having an air inlet at one end and an air outlet at its opposite end, a fan



arranged to force a stream of air from said inlet, through said chamber and out through said outlet, a cooling coil arranged in the stream of air passing through said chamber, means for discharging and distributing water over said cooling coil to wet the exterior of said cooling coil and to evaporate and absorb heat therefrom, means for continuously conducting the said stream of fluid to be cooled through said cooling coil, a duct for conducting outside air to said air inlet, a recirculation duct conducting a part of the stream of air leaving said chamber back to said air inlet and means for adjusting the relative amounts of outside and recirculated air admitted to said air inlet to maintain a minimum surface temperature of said cooling coil comprising damper means in the currents of outside and recirculated air passing through said outside air and recirculated air ducts and movable to restrict the flow of one of said currents of air and to relieve the restriction to the flow of the other of said currents of air and vice versa and a thermostat responsive to the temperature of said stream of fluid and regulating said dampers.

7. A heat exchange device for maintaining a fluid in a selected temperature range determined by the character of the fluid by cooling a stream of said fluid and preventing the temperature thereof from falling below said temperature range, comprising means forming a chamber having an air inlet at one end connecting with the outside air and an air outlet at its opposite end, a fan arranged to force a stream of air from said inlet, through said chamber and out through said outlet, a cooling coil arranged in the stream of air passing through said chamber, means for continuously conducting the said stream of fluid to be cooled through said cooling coil, said stream of air normally being heated through heat derived from said stream of fluid passing through said cooling coil, a recirculation duct conducting a part of the stream of air leaving said chamber back to said air inlet, and means for adjusting the relative amounts of outside and recirculated air admitted to said air inlet to prevent the temperature of said fluid in said cooling coil from falling below said temperature range, comprising damper means in the currents of outside and recirculated air passing through said outside and recirculated air ducts and movable to restrict the flow of one of said currents of air and to relieve the restriction to the flow of the other of said currents of air and vice versa and thermostat means responsive to the temperature of one of said streams and regulating said damper.

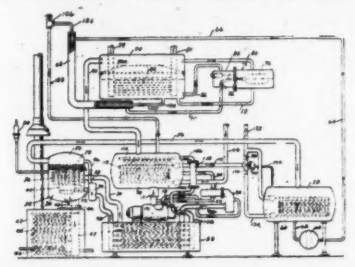
2,356,261. REFRIGERATION. William L. McGrath, Philadelphia, Pa., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Original application June 25, 1938, Serial No. 215,796. Divided and this application March 25, 1942, Serial No. 436,064. 6 Claims. (Cl. 62—3.)



1. In a refrigeration system including a compressor, a condenser, and an evaporator, means for circulating a cooling medium through said condenser, a valve in control of the flow of cooling medium through said condenser, an electric motor controlling the position of said valve, circuit controlling means controlling the operation of said motor, means responsive to the temperature differential at the inlet and outlet of said condenser in control of said circuit controlling means, and means responsive to the pressure on the high pressure side of the compressor for varying the effect of said circuit controlling means on the motor in such manner that a lower differential in temperature at the inlet and outlet of the condenser is maintained as the pressure on the high pressure side of the compressor increases.

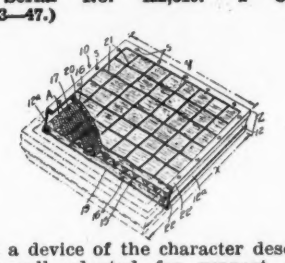
2,356,638. REFRIGERATING APPARATUS. Walter W. Williams, Chicago, Ill. Application Aug. 3, 1940, Serial No. 350,993. 11 Claims. (Cl. 62—5.)

1. In an absorption type refrigerating apparatus employing a low pressure refrigerant and including an absorber, a heat exchanger, a heater, a condenser, and a cooling coil, the provision of a centrifugal circulating pump interposed between



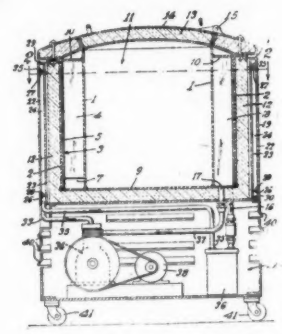
the absorber and heat exchanger to circulate the solution from the absorber through the heat exchanger to the heater, and a flow regulator including a float-operated valve controlled by the level of the solution in the absorber interposed between the discharge side of the pump and the heat exchanger to maintain a head of solution over the intake side of the pump whereby cavitation of the pump is prevented.

2,356,757. AIR CONDITIONING APPARATUS. Walter L. Fleisher, New York City, N. Y. Application Dec. 10, 1941, Serial No. 422,319. 2 Claims. (Cl. 183—47.)



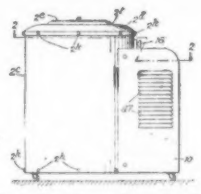
1. In a device of the character described a unit cell adapted for support at an angle with the horizontal and comprising a frame, an apertured retaining member spanning the open area of one face of said frame, a layer consisting of a plurality of elongated oriented filamentary members, each spanning said frame between its upper and lower edges, a corrugated, apertured, resilient member overlying said layer, a second layer consisting of a plurality of oriented filamentary members, each spanning said frame between its upper and lower edges, an apertured retaining member overlying said last-named layer and spanning the open area of said frame, the thicknesses of said layers and said dimensions of said resilient member being so admeasured as to maintain the members of said layers under compression between said apertured retaining members.

2,356,778. EVAPORATOR UNIT CONSTRUCTION. Willaird L. Morrison, Lake Forest, Ill. Application Jan. 22, 1940, Serial No. 314,922. 12 Claims. Cl. 62—126.)



1. An evaporator unit construction comprising two cylinders of different diameters, one within the other, the inner cylinder formed of heat conducting material, said cylinders having a space between them, a series of separate pieces disposed in said space dividing said space into a series of passageways connected together to form a continuous conduit for refrigerant material, one of said cylinders forming a portion of each of said passageways, and means for connecting said passageways with a source of refrigerant material, the inner cylinder forming a cooling receptacle for the material to be cooled, said pieces disposed in the space between the cylinders being loosely disposed in position so that refrigerant gas may pass between them and the inner cylinder so that the inner surface of the inner cylinder is a continuous primary surface.

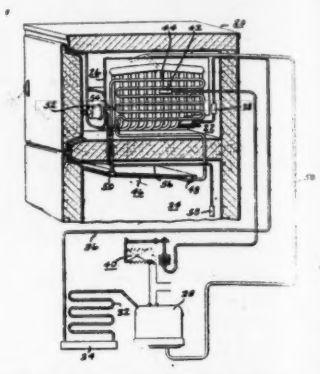
2,356,779. APPARATUS FOR FREEZING FOODS. Willard L. Morrison, Lake Forest, Ill. Application Oct. 31, 1940, Serial No. 363,743. 38 Claims. (Cl. 62—116.)



1. A device for freezing foods comprising an evaporator comprising two cylinders of different diameters, one within the other, the inner cylinder forming a food receiving receptacle, said cylinders having a space between them, provided with a series of sections forming a continuous passageway extending back and forth longitudinally in the space between said cylinders along which a gaseous refrigerant is passed, a refrigerating apparatus connected with said passageway, comprising a compressor, and means separate from said passageway for removing oil from the compressor that may be deposited in said passageway, and returning it to the compressor.

2,357,099. REFRIGERATING APPARATUS. Richard S. Gaugler, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Feb. 25, 1939, Serial No. 258,519. 13 Claims. (Cl. 62—116.)

1. A refrigerating apparatus comprising in combination, a primary refrigerating system including a refrigerant liquefying unit and an evaporator connected in closed circuit relation, said evaporator having metal walls in which the refrigerant is located, a closed secondary circuit containing a volatile liquid enclosed in metal walls and having an evaporating portion, a portion of the metal walls of said primary evaporator being in direct metal-to-metal contact with a portion of the metal walls of the secondary circuit to form a condensing portion in the secondary circuit, and means for controlling the temperature of the evaporating portion of the secondary circuit, said means consisting of means for elevating a part



intermediate the condensing portion and the evaporating portion of said secondary circuit above the plane of the condensing portion thereof whereby said volatile liquid will be trapped in that portion of the metal walls of the secondary circuit which is in contact with the walls of the primary evaporator.

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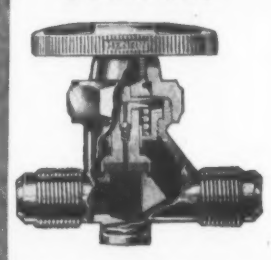

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Servicing the G-E Refrigerator Line

Replacement Procedure

Machine Replacement

Two men are usually required to handle a machine replacement.

CF, CH, AND CJ MACHINES

1. Remove evaporator door if one is installed.
2. Remove cabinet top cover and insulation.
3. Disconnect leads to cabinet light, switch and butter conditioner if installed.
4. Remove screws holding cabinet top plate to cabinet liner walls.
5. Remove escutcheon and control assembly and push it back into evaporator, if necessary, so that evaporator will clear top opening in cabinet.
6. Assemble supporting brackets to machine, if they are available.
7. Remove screws holding flat-plate condenser to rear of cabinet.
8. Open lower front panel of cabinet or remove dry storage compartment if installed.
9. Remove bolt which holds motor-compressor assembly to base of cabinet.
10. Swing lower part of machine out rear of cabinet until compressor is clear.
11. Lift compressor case while evaporator assembly is being raised out of top of cabinet. Be careful not to kink tubing.
12. Stand machine on floor if supporting brackets are installed. Otherwise, set evaporator on a box or table, or lay entire machine on floor on its side, to prevent kinking tubes.
13. Lift evaporator of replacement machine in place with supporting brackets still installed to cabinet top plate. Then remove supporting brackets.
14. Swing lower part of machine into place.
15. Replace mounting bolts and screws.
16. Reassemble cabinet top. Iron down No-Ox-Id cloth with a block of wood. Make certain cabinet top is well sealed from air. Sponge rubber around refrigerant tubes should completly fill opening in rear.

Replacing G-E Machines

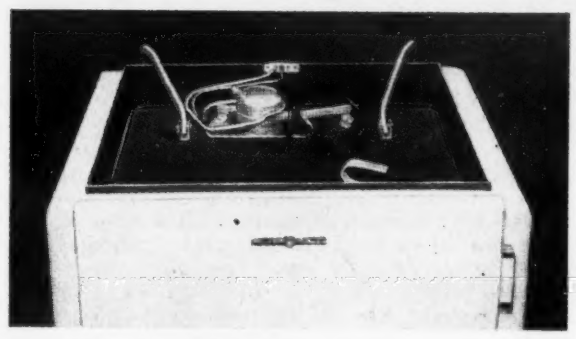

Fig. 56—Front view of supporting brackets in CF, CH, and CJ models.

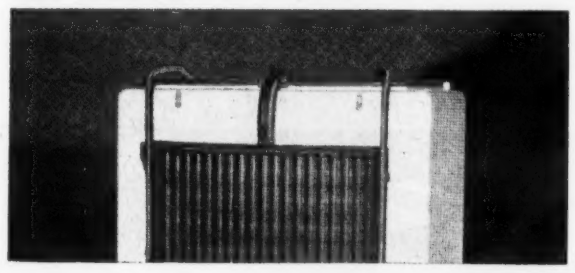

Fig. 57—Rear view of supporting brackets shown above.

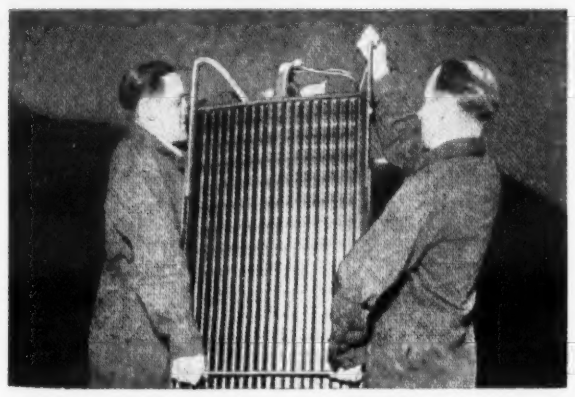

Fig. 58—How machine is lifted out of cabinet.

CE MACHINES

Replacement procedure for CE machines is similar to that of CF, CH, and CJ machines. However, since CE machines have no flat-plate condenser, motor-compressor assembly can be lifted from rear of cabinet onto a box or chair and then evaporator assembly raised out of cabinet top. Care should be taken not to kink tubing.

FBA MACHINES

Replacement procedure for FBA machines is similar to that of CF, CH, and CJ machines. However, evaporator is removed through rear of cabinet rather than by removing cabinet top. Evaporator is attached to top of cabinet liner with screws.

CA, CG, CK, AND DR MACHINES

1. Remove evaporator door if one is installed.
2. Lift complete machine up and out of cabinet.
3. Lower replacement machine into place.
4. Replace evaporator door.

DK MACHINE

1. Remove channel holding tubing and wiring to side of cabinet.
2. Remove cabinet top cover and insulation.
3. Take out blocks and corner pieces holding cabinet top plate in place.
4. Lay refrigerator on its back.
5. Remove bolts holding machine to base.
6. Lift evaporator assembly out of top of cabinet. Be careful not to kink tubing.
7. Install repalcement machine by reversing previous steps.

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ENGINEER, experienced in refrigeration compressors and/or cabinets to expand old established business now on war work. When applying give full details as to education, experience, family, salary required. Apply Box 1615, Air Conditioning & Refrigeration News.

CAPABLE and energetic man experienced refrigeration parts and supplies by very reliable concern 12 years in business. Large city deep south. Attractive salary and bright future. Box 1614, Air Conditioning & Refrigeration News.

ESTABLISHED FRIGIDAIRE dealer organizations in Colorado need for immediate and post war activities, appliance sales manager, combination commercial sales and service manager, appliance servicemen, commercial refrigeration servicemen. Applications should contain complete information. FRIGIDAIRE DIVISION OF GENERAL MOTORS CORP., Denver Branch, 1920 Market St., Denver, 2, Colo.

EXPERIENCED ENGINEER and designer thoroughly familiar with commercial refrigeration for old established manufacturer soda fountains, ice cream cabinets, food refrigerating equipment. Must be capable, assuming responsibilities in development, designing, redesigning on equipment. Position offers unusual opportunity for experienced, imaginative, inventive man. State full particulars. Box 1612, Air Conditioning & Refrigeration News.

FINE OPPORTUNITY for right man. Fast growing company looking for refrigeration department manager. High and low pressure equipment. Box 1613, Air Conditioning & Refrigeration News.

ENGINEER WANTED: Large Ohio school teaching refrigeration and air conditioning by correspondence supplemented by shop training desires man with suitable engineering degree, who can teach resident students, supervise correspondence instruction and assume full charge of laboratory. Please give details of education and experience. Box 1610, Air Conditioning & Refrigeration News.

LABORATORY PROJECT engineers with experience in research or development work able to handle all testing of a product or specialized project. Nationally known refrigerator manufacturer with excellent present and postwar opportunities. State qualifications and experience. Box 1603, Air Conditioning & Refrigeration News.

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GRADUATE ENGINEER, 25 years experience—manufacturing, educational work, sales promotion, administrative and contact sales domestic, commercial refrigeration and air conditioning—desires sales position with manufacturer or district representative for established line of accessories. Familiar all U. S. territory. Available on or before October 1st. Box 1616, Air Conditioning & Refrigeration News.

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AMMONIA COMPRESSOR 6 x 6 with 15 H.P., 220 V., 3 ph., motor, ammonia receiver, direct expansion coil, control equipment, and valves. O. T. WOOD, 395 High Steet, Clinton, Mass.

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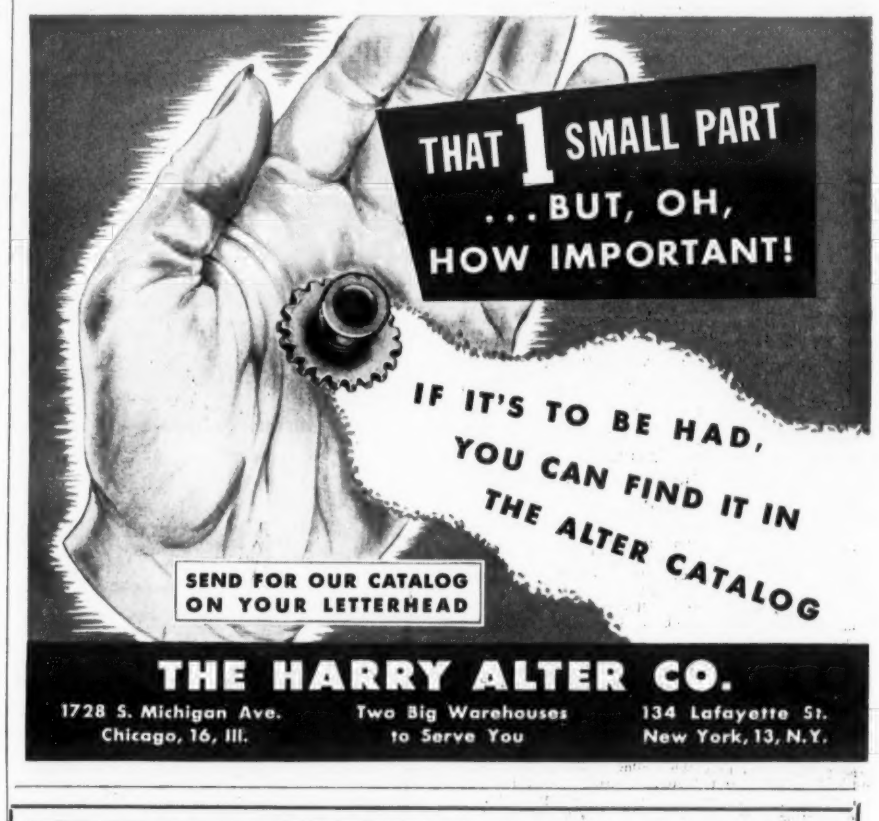
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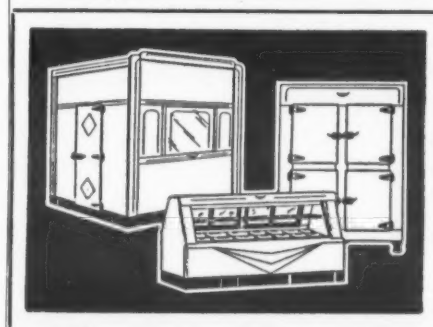
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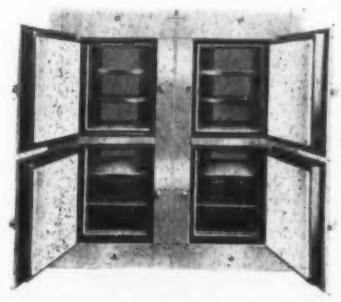
Wilson ZEROSAFE Reach-In Sectional Model RL-60 for the Storing and Dispensing of Frozen Foods.

Steel Is Allocated For Civilian Goods

(Concluded from Page 1, Column 2)

that it would not be needed for war or programmed essential civilian goods production.

"The new steel will help to increase the amount of non-military production which will be permitted under the spot authorizations inasmuch as the only steel available until the present time for spot production has been in idle and excess stocks.

"This new production steel reserve will be used primarily to make allotments to small plants which are suffering hardship. In addition it will be used to provide 'fill-in' material to be used in conjunction with idle and excess stocks.

"Regional offices already have the machinery set up with which to make allotments of this steel. It only remains for regional offices to be given their individual reserves for them to be in a position to grant allotments on the basis of which persons authorized to make civilian goods under 'spot' will be in a position to place purchase orders."

In the determination of allotments the following preferences in order of importance will be used as a guide:

1. All applications which are certified by Smaller War Plants Corp. as hardship cases,

2. Applications from plants employing fewer than 250 wage earners,

3. Applications for authorization to produce Office of Civilian Requirements preferred products,

4. Applications indicating ability to use large quantities of surplus materials with "fill-in" amounts of raw materials, or facilities immediately available for utilization of new materials, or provision for employing a large number of workers.

Restrictions imposed on field offices at this time apply only to the allotment of the 125,000 tons of steel now being set aside. It is expected that the restrictions will be lifted as the steel reserve is increased.

The new allotment of steel is in addition to allotments of copper and aluminum previously made for spot authorizations. Fifteen million pounds of aluminum are available for use under the program.

At the same time that the steel allotments were announced, WPB officials pointed out that in the future persons seeking surplus materials for use under "spot," including steel, should contact disposal agencies designated by the Surplus War Property Administration.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Air Conditioning & Refrigeration News published weekly at Detroit 2, Mich. for October 1, 1944.

State of Michigan }
County of Wayne } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared George F. Taubeneck, who, having been duly sworn according to law, deposes and says that he is the Editor and Publisher of the Air Conditioning & Refrigeration News and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher, George F. Taubeneck, Grosse Pointe, Mich.
Editor, George F. Taubeneck, Grosse Pointe, Mich.
Managing Editor, Phil B. Redeker, Detroit, Mich.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

George F. Taubeneck
(Signature of publisher.)

Sworn to and subscribed before me this 20th day of September, 1944.

[SEAL] Helen C. Henderson
(My commission expires Dec. 26, 1947.)

Leagues Hear Plan Of Retailers Assn.

(Concluded from Page 1, Column 4)

the statistics and analyses presented during the first day of the conference.

The question of what part the National Electrical Retailers Association can play in the local retailer-utility effort to survey market conditions and follow through with appliance sales received an unusual amount of discussion in questions from the floor. The utility company representative who outlined the association's aims pointed out that the utility's interest rested in having a central point of contact among dealers.

Crosley Denies Story On Richmond Plant

CINCINNATI — The Richmond, Ind., plant will not be reconverted to the production of automobiles, but rather will be used for the production of Crosley household electric refrigerators, R. C. Cosgrove, vice president and general manager of Crosley Corp. declared last week.

Mr. Cosgrove was commenting on a news story which had declared that the Richmond plant, now engaged in war production, would be reconverted to auto production, with the contemplated additional facilities in Cincinnati to be used in connection with the Richmond factory.

Richter Leaves Post As Head of 'Duco'

WILMINGTON, Del. — William Richter, who was active in the development of "Duco" and "Dulux" finishes, has retired as general manager of the Fabrics and Finishes department of E. I. du Pont de Nemours & Co., effective Oct. 1.

J. Warren Kinsman, president assistant general manager of the company's Organic Chemicals department, has been named to succeed Mr. Richter, while Dr. William Kirk, manager of the Chambers Works at Deepwater, N. J., will take over Mr. Kinsman's position.

Mr. Richter has headed the Fabrics and Finishes department since 1927.

Augenstein Named G-E Engineer

BRIDGEPORT, Conn.—Paul Augenstein has been appointed commercial engineer of General Electric's range and water division.

Mr. Augenstein joined the company nine years ago when the headquarters of the appliance department was in Nela Park, Ohio. He began his career with the product service division and specialized on service policies and procedures.

When the department was moved to Bridgeport in 1939 he was assigned as a range specialist, supervising all activities of field service programs, acting as liaison man between factory and field.

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